

CA1
AI
-77017

GOVT



Digitized by the Internet Archive
in 2022 with funding from
University of Toronto

CAI

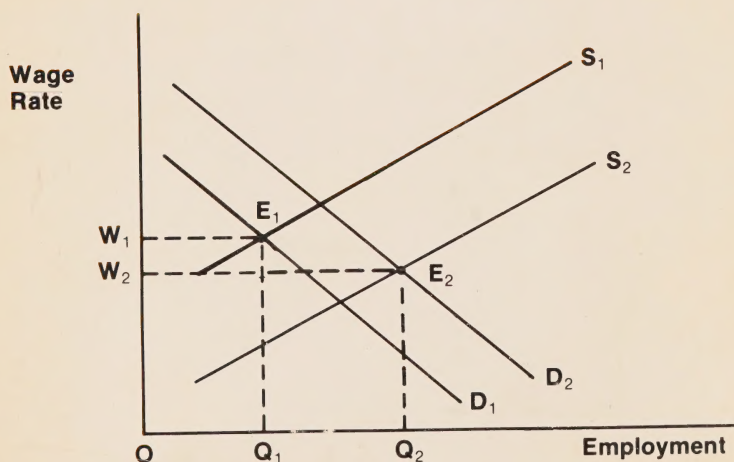
AI

77417

Government
Publications

9

THE OCCUPATIONAL STRUCTURE OF EARNINGS IN CANADA 1931-1975

MELTZ &
STAGERAnti-Inflation
BoardCommission de lutte
contre l'inflation

CA1
A1
-77617

THE OCCUPATIONAL STRUCTURE OF EARNINGS IN CANADA, 1931 - 1975



by

Noah M. Meltz

Centre for Industrial Relations
and Department of Political Economy
University of Toronto

David Stager

Institute for Policy Analysis
and Department of Political Economy
University of Toronto

December 1977

© Minister of Supply and Services Canada 1979

Available in Canada through

Authorized Bookstore Agents
and other bookstores

or by mail from

Canadian Government Publishing Centre
Supply and Services Canada
Hull, Quebec, Canada K1A 0S9

Catalogue No. F96-1/3-1979
ISBN 0-660-10080-0

Canada: \$6.25
Other countries: \$7.50

Price subject to change without notice.

Table of Contents

| | <u>Page</u> |
|---|-------------|
| INTRODUCTION | 1 |
| SUMMARY | 4 |
| Related Studies and Data Sources | 4 |
| Long-term Trends in the Occupational Structure of Earnings | 6 |
| The Determinants of the Long-term Trends.. | 8 |
| Recent Changes in the Occupational Structure of Earnings | 10 |
| Observations Concerning Methodology and Data | 11 |
| I CHANGES IN OCCUPATIONAL WAGE STRUCTURES: | |
| THEORY AND EVIDENCE | 15 |
| The Theory of Wage Determination and Wage Differentials | 15 |
| Factors Causing Changes in the Wage Structure | 22 |
| General Pattern of Long-run Narrowing... | 22 |
| Economic Factors | 25 |
| Level of Unemployment | 25 |
| Inflation | 27 |
| Productivity Changes | 27 |
| Institutional Changes | 28 |
| Unionism | 28 |
| Minimum Wage Legislation | 30 |
| Custom and Discrimination | 30 |
| Education and Training | 31 |
| Immigration | 32 |
| Centralized Wage Determination | 32 |
| Summary of Related Empirical Studies ... | 33 |

| | <u>Page</u> |
|--|-------------|
| II OCCUPATIONAL EARNINGS DATA: SOURCES | |
| AND PROBLEMS | 44 |
| The Decennial Census | 44 |
| Conversion of Occupational Classifica- | |
| tion for Inter-censal Comparability ... | 45 |
| Characteristics of Comparable | |
| Occupations | 49 |
| Earnings Data from the Census | 51 |
| Methodological Questions on Earnings Data . | 58 |
| Comparisons of Occupational Earnings | 58 |
| Intra-occupational Dispersion of | |
| Earnings | 60 |
| Earnings versus Wage Rates | 61 |
| Fringe Benefits | 63 |
| Other Data Sources | 65 |
| Earnings Data from the Taxation | |
| Statistics | 67 |
| Comparison of Census and Taxation Data .. | 69 |
| Earnings Data from the Consumer Finance | |
| Surveys | 71 |
| III LONG-TERM TRENDS IN THE OCCUPATIONAL STRUCTURE | |
| OF EARNINGS IN CANADA, 1931 TO 1971 | 73 |
| Changes in Relative Earnings | 73 |
| Changes in Relative Earnings for Major | |
| Occupations, 1931 to 1961 | 73 |
| Changes in Relative Earnings in Selected | |
| Occupations, 1931 to 1971 | 76 |
| Professionals | 78 |
| Clerical | 80 |
| Commercial and Financial | 86 |
| Service | 86 |
| Transportation and Communication | 87 |
| Manufacturing and Mechanical | 87 |
| Construction Trades | 88 |
| Summary of Changes in Relative Wage and | |
| Salary Earnings by Occupation | 88 |
| Wage and Salary Versus Self-Employment | |
| Income, 1961 to 1971 | 89 |
| Application of the Demand-Supply Model .. | 95 |
| Regression Analysis | 103 |
| Explanatory Variables and the Hypothesis. | 104 |

| | <u>Page</u> |
|--|-------------|
| Comparison of the Determinants of | |
| Relative Earnings | 108 |
| Males | 108 |
| Females | 112 |
| Examination of Structural Changes | 113 |
| Males | 114 |
| Females..... | 117 |
| IV | |
| RECENT CHANGES IN THE OCCUPATIONAL STRUCTURE | |
| OF EARNINGS IN CANADA, 1970 TO 1975 | 121 |
| Taxation Data on Relative Earnings | 121 |
| Relative After-Tax Incomes | 130 |
| Household Survey Data on Relative | |
| Earnings | 132 |
| Rank Order Changes in Relative | |
| Earnings | 136 |
| APPENDIX A | 139 |
| APPENDIX B | 185 |
| Concept and Classification of | |
| Occupations | 185 |
| Special Problems in Comparing the 1971 | |
| Census Occupation Classification with | |
| Earlier Occupation Classifications ... | 186 |
| Methods Used to Identify Occupations | |
| Which are Comparable between the 1971 | |
| and 1961 Classifications | 190 |
| APPENDIX C | 219 |
| BIBLIOGRAPHY..... | 229 |

Tables

| | | <u>Page</u> |
|---|---|-------------|
| 1 | Summary of Studies of Trends in Occupational Wage Structures | 36 |
| 2 | Occupations Comparable Between Censuses, 1931 to 1971 and 1961 to 1971 | 48 |
| 3 | Representation of Selected Comparable Occupations Among Occupation Groups in 1961 | 50 |
| 4 | Percentage of the Labour Force in Each Occupation Group Reporting Wage and Salary Earnings, 1931-1961 | 52 |
| 5 | Composition of Average Total Compensation, For All Industries and Selected Industries, Canada, 1976 | 64 |
| 6 | Comparison of Average Earnings and Numbers Employed as Reported in the Census and Taxation Statistics, Males and Females Combined, Canada, 1960/61 and 1970, Selected Occupations | 70 |
| 7 | Interdecade Change in Relative Wage and Salary Earnings in Selected Occupations | 79 |
| 8 | Average Annual Wage and Salary Earnings in Selected Occupations (Males and Females Combined) as a Percentage of Average Annual Earnings for all Occupations, Canada, 1931-1971 | 81 |

TABLES (Cont'd)

| | <u>Page</u> |
|--|-------------|
| 9 Self-Employment Income and Wage and Salary Earnings as a Percentage of All Employment Income (Males and Females Combined) in Selected Occupations, Canada, 1961 and 1971 | 91 |
| 10 Earnings of Self-Employed and Wage and Salary Earners for Selected Occupations, Male and Female Combined, Canada | 94 |
| 11 Dominant Factors Responsible for Interdecade Changes in Relative Earnings in Selected Occupations | 100 |
| 12 Regression Results for Selected Occupations, by Sex, Canada, 1941-1971 | 109 |
| 13 Elasticities of Relative Earnings Differen- tials for Selected Occupations, by Sex, Canada, 1941-1971 | 111 |
| 14 Regression Results for Pooled Equations | 116 |
| 15 Average Annual Earnings in Selected Occupa- tions as Percentage of Average Annual Earnings for all Occupations Males and Females Combined, Canada, 1950/51 to 1975.. | 123 |
| 16 Average Annual Earnings in Selected Occupa- tions as a Percentage of Average Annual Earnings for all Occupations (Males and Females Combined), Canada, 1970-1975 | 126 |
| 17 Relative Employment Income, Total Income, and After-Tax Income for Selected Occupations, Canada, 1970-1975 | 131 |

TABLES (Cont'd)

| | <u>Page</u> |
|--|-------------|
| 18 Relative Average Earnings for Broad Occupa- tion Groups, Canada, 1965-1971 | 133 |
| 19 Relative Average Earnings for Broad Occupa- tional Groups, Canada, 1972-1975 | 134 |
| 20 Rank Correlation Coefficients for Occupa- tional Earnings Structures, by Data Source, Canada, 1931-1975 | 137 |

Charts

| | |
|---------|-----|
| 1 | 19 |
| 2 | 19 |
| 3 | 43 |
| 4 | 75 |
| 5 | 77 |
| 6 | 90 |
| 7 | 97 |
| 8 | 97 |
| 9 | 128 |

Acknowledgements

We would like to thank everyone who assisted in the preparation of this study, and who provided advice and guidance during the various stages of its development.

A number of persons helped to prepare the material. Mr. Wayne Lewchuk undertook the tedious yet crucial task of examining the occupations for comparability of classifications over time. Mr. Vladimir Bajic developed and tested the regression models. Miss Marcelle Elhadad compiled background data on the industrial distribution of selected occupations. Miss Jane Rose prepared the original statistical tables with care and accuracy, and together with Miss Suzanne Noble typed the earlier drafts and final report. Background resources were made available by Jean and Dorothy Newman who were respectively the Librarian and Assistant Librarian of the Centre for Industrial Relations. Mrs. Deborah Campbell, Administrative Assistant to the Director of the Centre, handled personnel and budgetary matters and provided general assistance to the study.

Mrs. Amy Kempster of Statistics Canada provided invaluable assistance. This study could not have been completed without the special material and advice which she provided in the preparation of the occupational conversions. We would also like to thank M. Giles Montigny, a member of Mrs. Kempster's staff, for the help he gave us.

Several people commented on earlier drafts of the report. Dr. David Dodge and Mr. Peter Ross worked with us from the beginning of the project and gave us valuable suggestions. The AIB research branch staff seminar served as a valuable sounding board for the report at two stages of the project. Mr. Allan Porter of Labour Canada wrote a special note commenting on specific sections of an early draft. We have incorporated several of Mr. Porter's points in our revised report. Our colleague, Professor Frank Reid provided useful comments on a draft report of the regression results.

We appreciate the assistance we have received from all of these people, but of course none of them can be associated with any problems that remain.

Noah M. Meltz

David Stager

Preface

Under the Anti-Inflation Act, the Anti-Inflation Board was established to monitor changes in prices, profits, compensation and dividends and to attempt to influence such changes to be within the limits and spirit of the guidelines.

The Board was also charged with the responsibility of promoting public understanding of the inflationary process.

From the beginning, the Board has carried out a vigorous program of communication in an endeavour to generate discussion and promote understanding by the general public.

The Board also commissioned and conducted studies for release as research reports and discussion papers, aimed at a more limited audience of users of information on economic matters.

This study is presented as a contribution to discussion on Canada's economic environment. It was prepared under contractual arrangements with the Anti-Inflation Board, as part of the research program.

The views expressed herein are those of the author and do not necessarily represent those of the Anti-Inflation Board or of the Government of Canada.

Harold A. Renouf
Chairman
Anti-Inflation Board

Duties of the Board

"through publication of reports, public hearings and meetings and such other methods as it considers appropriate, promote public understanding of the inflationary process, the relationships between productivity, costs and prices, the various policies available to governments to deal with inflation and the advantages, effects and limitations thereof, the role to be played by businesses and groups of employees in combatting inflation and the implications of the failure of governments, businesses and groups of employees to cooperate in combatting inflation." (Section 12 (1) (e) Anti-Inflation Act.)

Introduction

In a period of rapid inflation, public concern is focused not only on real income but also on relative earnings. It is widely believed that some groups are able to maintain or even increase their real incomes to a greater extent than others. Under such circumstances, comparisons of earnings among occupations come to the fore and play perhaps an even greater role than at other times in providing reference points or targets. This study was undertaken to provide a context in which to discuss the changes which have taken place in relative earnings. There were two major objectives: (i) to assemble the data required to calculate relative earnings for a representative number of occupations in Canada over the period 1931 to 1975; (ii) to analyze the economic factors that underlie changes in relative earnings.

The emphasis throughout this report is on what is generally termed a "wage structure" or "earnings structure", that is, the relationship among occupational wage rates or earnings.¹

¹Wage structures are usually described or analyzed in terms of three possible dimensions - occupational, industrial geographical - although race and sex differentials are receiving increasing attention. This study focuses on occupations.

Remuneration for labour services can be examined on the basis of various categories: wage rates, wages and salaries paid, employment earnings, and total employment earnings including fringe benefits. While most studies of wage structures have been based on wage rates, this one focuses primarily on wage and salary earnings. There are no known studies of occupational differentials in terms of total compensation, when fringe benefits are included. This is a serious shortcoming in labour economics research, as Clark Kerr emphasized two decades ago:

"What has happened to 'compensation' differentials (wages and 'fringe benefits' taken together) is a different and more complex question; and an increasingly important one with the growth of 'fringe benefits'. The 'compensation structure' is a more meaningful, if less tractable, concept than the 'wage structure'. On the currently available evidence it is almost foolhardy to estimate whether occupational 'compensation' differentials are or are not behaving similarly to occupational wage differentials."¹

Few occupations can be defined free of any industrial connotation as many occupations tend to have a substantial representation² in only one or two major industrial groups.² Since occupations generally are defined according to required skills as well as job functions, one

¹ Clark Kerr (1964), p. 178.

² See Noah Meltz (1968), Table D.1.

would expect that there should be wage differences among occupations which are due, at least in part, to the skill differences among occupations.

Economists have long been interested in the reasons for wage differentials among occupations. Two hundred years ago, Adam Smith argued that these differences were necessary to compensate workers adequately for five factors that differentiated occupations: agreeableness (or disagreeableness) of the work; costs of acquiring skills; constancy (or irregularity) of employment; trust or responsibility associated with the job, and probability of success (or continued occupational advancement).¹ Albert Rees has suggested that these five factors can be reduced to three which are central to contemporary economic² analysis: education, tastes, and expectations.

Several existing studies have focused on the factors explaining the occupational wage or earnings structure existing at a specific time and place, but here changes in the occupational earnings structure in Canada is examined over more than four decades. Special attention has been given to the past 15 years. A further distinction must be made between those changes in the occupational earnings structure which occur in the short run and those which occur over the longer run. The factors or processes associated with short-run changes may be different from those through which the longer-run or more permanent changes occur, and thus the policy implications may also be different in each case.

¹ Adam Smith (1937) p. 100.

² Albert Rees, (1973) pp. 165-170.

Summary

Related Studies and Data Sources

The first step in this study was to explore the theoretical and empirical literature dealing explicitly with changes in occupational wage or earnings structures. Most of these studies were concerned with the American labour force, used data on average hourly earnings, and covered some period before 1960. Canadian studies generally used census data on earnings, while European research employed wage rate data. The studies tended to deal only with the "skilled/unskilled" wage differential, rather than with the relative wages of several distinct occupations.

The findings of these studies were generally similar among these countries, particularly for the 1940-1950 period. In the United States, the pattern of wage differentials appears to have been as follows: narrowing between 1900 and 1920; widening in the 1920-1932 period; little change in the 1930's depression; pronounced narrowing during the 1940's (particularly in World War II); stability in the 1950's and 1960's -- with some evidence of widening toward the end of the 1960's. For the other countries included in the summary, the pattern is similar with two exceptions: there is some evidence of stability (rather than widening) in the 1920's, and of widening in the 1950's and 1960's -- notably in Canada and the United Kingdom.¹

¹ See Chart 1 for a diagrammatic summary of these findings.

Our next step was to determine those occupations for which the census classification had remained the same over the 1931 to 1971 period. This was done by identifying the occupations that were comparable between the 1961 and 1971 censuses, and then selecting from these the occupations that could be linked with comparable occupational titles from 1931 to 1961, based on an earlier study of a similar nature.¹ This technique produced 23 specific occupations for which wage and salary data were comparable throughout the 1931 to 1971 period, and 52 that were comparable for the 1961 and 1971 census.²

The sources and use of data presented several problems in the examination of historical changes in occupational earnings structures. While fringe benefits are a major portion of the total compensation package, this percentage varies among occupations and hence alters the occupational earnings structures based only on direct earnings. Similarly, occupational pay differentials will vary depending on whether earnings or wage rates are used in the calculations. Which of these should be used thus depends on the specific objectives of the exercise. Various methods have been used to compare occupational earnings, including the approach adopted in this study which compares the average earnings for the occupation with the average for the total labour force.

¹Noah M. Meltz, (1968).

²See Table 3. Note that earnings data were not available or not used for three of the 52 occupations, and the data for two occupations were combined. This resulted in 49 occupations for which data are used.

Our main data source was the decennial Census of Canada. Although this provided only five observations for each occupation through the 1931 to 1971 period, and although the data were consequently biased by the specific circumstances of each census year, this was the most extensive and consistent set of occupational earnings data available.

Other data sources were the Taxation Statistics and the Consumer Finance surveys.¹ Taxation statistics are available on an annual basis from 1946 for a consistent set of professional and managerial occupations. Though they provide data for a large number of income sources, they group the majority of the labour force into only six employee categories. The Consumer Finance surveys - biennial to 1971 and annual since then - offer earnings data for the major occupation groups, based on the census classifications.

Long-term Trends in the Occupational Structure of Earnings

The structure of earnings by occupation has narrowed over the 40 years between 1931 and 1971, but within this general picture there are diverse patterns. To begin with, relative earnings have increased in five of the 23 occupations traced back to 1931. Secondly, between 1951 and 1971, there were as many occupations with increases in relative earnings as there were with decreases. Thirdly, there appears to have been a recent tendency for

¹ Revenue Canada, *Taxation Statistics*; and Statistics Canada, *Income Distributions by Size in Canada*.

relative earnings to increase in the higher wage occupations and to fall in the lower wage occupations, although this observation is very tentative since there were few below-average earnings occupations in our sample. Finally, there were three prevalent patterns of change in relative earnings: (i) large ups and downs; (ii) a long-term decrease in earnings; (iii) a U-shaped decrease-then-increase.

The health professionals (with the exception of graduate nurses), legal professionals, architects, professors and teachers, firemen, policemen, and street car operators experienced the U-shaped pattern of decrease-then-recent-increase in their relative earnings. Graduate nurses, air pilots, the metal rolling and tool and die making trades, plasterers and lathers, brick and stone masons and concrete finishers have had variation in their relative earnings, almost from decade to decade, but little long-run change. For some occupations, relative earnings have moved more or less steadily downward. Electrical engineers, stenographers and typists, barbers and hairdressers, locomotive engineers and firemen, telegraph operators, mail carriers, flour millers, and movie projectionists are all in this latter category. These patterns are illustrated in Chart 6.

Earnings data for self-employed persons were not available until the 1961 census. During the 1961-1971 period, self-employed physicians and surgeons, lawyers and dentists increased their earnings by 15 to 25 per cent relative to the overall average of self-employed. At the same time, salaried physicians and dentists increased their earnings by even more than their self-employed counterparts. Salaried lawyers made no similar gains in relation to self-employed lawyers.

The Determinants of the Long-term Trends

The determinants of earnings differentials in Canada over the 1931-71 period were examined in two ways. First, a simplified supply-demand model was used to determine whether supply or demand was the dominant factor responsible for changes in earnings differentials by occupation. According to our results, similar factors were responsible for the three patterns of earnings changes described above. For those occupations in which relative earnings decreased from 1931 to 1951 and then increased, the dominant factor in the decline was a drop in demand. On the upswing, however, relative earnings rose in some occupations because of increases in demand, while for other occupations, the earnings increase resulted from a relative reduction in supply. Physicians and surgeons and dentists were in the latter category, while the earnings of professors and teachers moved with demand.

For those occupations whose relative earnings decreased over the 1931-71 period, an increase in supply tended to be the dominant factor. This was true in the case of secretaries and typists and bus drivers. Other occupations in this group experienced a combination of supply increase and demand decrease (e.g., mail carriers, locomotive engineers and firemen).

The final pattern was one of fluctuations up and down (or down and up) in relative earnings, caused, until 1961, by alternating increases in demand and supply. Between 1961 and 1971, the increases in earnings resulted primarily from a decrease in supply. This occurred in the skilled trades, where there is some regulation of supply, and suggested the necessity of a more detailed examination of the operation of

the labour markets than was possible in this study.

Our second approach involved the use of regression analysis to test the hypothesis that changes in relative earnings by occupation resulted from changes in one or more of the following variables: age structure, educational level in terms of years of schooling and the industrial and regional distribution of each occupation. Since education data were not available for 1931, the analysis dealt with the period 1941 to 1971.

Our results showed that changes in an occupation's relative earnings were directly related to age and years of schooling. Education was consistently the most important variable in explaining movements in relative earnings, with elasticity measures above unity in all cases. This was particularly true for males, while for females the age variable was somewhat less important, at least in 1951 and 1961. The major difference between the two sexes occurred in 1971. Both the age and education variables had a significantly greater impact for women in 1971 than in 1961, suggesting that the demand for females in occupations requiring more work experience and greater human capital investment must have increased sharply.

The industrial and regional variables were insignificant in almost all cases, with elasticities approaching zero. These results indicate that factors relating to industry and region play a small role, if any, in explaining the changes in relative earnings differentials for the selected occupations.

Recent Changes in the Occupational Structure of Earnings

For the most recent years examined in this study (1970-1975), it was necessary to find comparable earnings data by occupation in other sources. The taxation statistics, which proved a satisfactory data source for at least this level of analysis, indicated that the increase in the relative earnings of self-employed professionals over the 1950-1970 period was slowed, halted, or even reversed between 1970 and 1975. On the other hand, self-employed salesmen and business proprietors found their relative earnings rising until 1974, with a decline in 1975. There was only a slight drop or no change in the relative earnings of employees, and consequently a slight narrowing in the overall structure of earnings from 1970 to 1975.

Since the higher-income occupations receive a larger proportion of their total incomes from employment than the lower-income occupations, the relative employment income structure tends to be wider than the relative total income structure. The latter structure is further narrowed if after-tax incomes are compared, due to the progressive income tax system.

Whereas the Consumer Finance Survey data for broad occupational groups show diverse changes in the relative earnings of full-year male workers in 1965-1971 (for example, managerial fell while professional increased), there was a clear widening of the earnings structure for females. From 1972 to 1975, the relative earnings of full-year male workers were either stable or generally declining, while at this point, females experienced more diverse changes: managerial and service occupations

made strong gains, while relative earnings declined in professional, and in processing and fabricating occupations. For the labour force as a whole, it would appear that the occupational earnings structure was substantially unchanged in the 1972-1975 period.

The ranking of occupations within the earnings structure appears to have been fairly stable, except in the 1941-1951 decade when there were a number of significant changes in rank order (physicians moved ahead of lawyers, and dentists overtook both; plasterers temporarily had higher earnings than postmen and air pilots).

Observations Concerning Methodology and Data

Chapters I and II discuss the various approaches used for measuring and summarizing changes in occupational earnings differentials or structures. Much of the work done in the 1950's and early 1960's was addressed to the question of whether the earnings structure was widening, narrowing, or remaining stable. This approach is not inappropriate when a certain segment of the labour force is under examination, for example, production worker in the manufacturing industry. These workers can be roughly grouped under "skilled" and "unskilled", with a simple ratio of their average earnings calculated to show changes in the wage structure.

The opposite case is that in which the coefficient of variation can be calculated for the occupational earnings structure of different years. A change in the coefficient directly indicates a change in the structure of relative earnings. This approach, however, should be used only when the number of specific

occupations is large enough to be representative of the whole labour force, or at least the whole of the labour force for the region or industry in question. Moreover, this technique implicitly gives equal weight to each occupation included. To say that the earnings structure is widening when the relative earnings of only a high-income but small professional occupation have increased, is to distort the significance of measures of the earnings structure.

In this latter case, as with the central work of this study, the emphasis should be placed on movements in the relative earnings of one occupation by comparison with a reference group or with the rest of the labour force. Ideally, this would require the earnings of the subject occupation to be subtracted from the total for the labour force, particularly when the magnitude of the occupation or its average earnings is large enough to bias the average earnings for the whole group. In short, when reviewing the findings in this study, more attention should be paid to changes in the earnings relationship of specific occupations than to casual observations about overall changes in the earnings structure.

Three major data problems were encountered in this study. The first involved the sharp break in the method of classifying occupations introduced by the 1971 census. Since very few occupations are now completely comparable with earlier censuses, data for most occupations cannot be compared over time. Statistics Canada's reclassification of the 1971 census on a 1961 occupation basis will add valuable additional information but the degree of comparability will still be less than that which existed among earlier censuses. On the positive side is the decision to use the 1971 occupation

classification (the Canadian Classification and Dictionary of Occupations, CCDO) in all federal government surveys and operations.

Since it is very likely that the decennial census will remain a major source of earnings data, it is essential that the 1971 classification be retained for the 1981 census to preserve the comparability of the occupations. Moreover, as additional earnings data become available in the future, at least for the 1971 and 1981 censuses, some examination should be made of the trends in relative earnings for the 80 per cent of the labour force for which earnings data were not available on an historically comparable basis. Further consideration should also be given to consolidating or co-ordinating sources of data to provide inter-censal data on earnings for specific occupations, that is, at the four-digit CCDO level. One would hope, too, Statistics Canada's biennial Occupational Employment Survey will eventually add earnings to their figures on numbers of persons.

Our second problem was the lack of data on fringe benefits by occupation. It is quite possible that differences in fringe benefits could significantly widen or narrow inter- and intra- occupational earnings differentials. Until such data are developed doubts will remain as to the actual extent of differentials.

A final problem was the lack of a single source for frequent earnings data by specific occupation. The only comprehensive source is the

¹The 1974 Consumer Finance Survey included a question on fringe benefits. This could provide data at least by broad occupational group, but the data have not yet been published.

decennial census. Taxation data provides annual earnings data for only a few specific occupations, while publications from the annual Survey of Consumer Finance deal with major groupings of occupations. Other sources are not consistent over time, provide data for only one industry, or report only wage rates. The latter do not provide for differences in hours worked and are thus not a measure of actual earnings.

In spite of these problems, this study has attempted to provide an overview of the patterns of change in the earnings structure by occupation in Canada. While the picture is not yet complete, and may never be, it nonetheless reveals a number of consistent developments which should add to an understanding of labour market developments in Canada.

CHAPTER I

Changes in Occupational Wage Structures: Theory and Evidence

Changes in occupational wage structures are examined in this chapter using two basic approaches. First, a theoretical framework is presented which deals with both wage differentials and changes in these differentials. A second section outlines specific economic and institutional factors which could change wage structures, and then summarizes empirical studies of these changes in different countries over various periods of time.

The Theory of Wage Determination and Wage Differentials

The conventional labour market model used to explain wage determination also provides a theoretical framework for this study's examination of changes in the occupational wage structure. In order to explain wage differentials, several labour markets must be examined. Since occupational titles are used to distinguish different kinds of labour, one must deal¹ with as many markets as there are occupations.¹ For simplicity, however, one can begin with a

¹The following elementary description of the wage-determination model can be skipped over by readers familiar with the basic theory of labour economics.

single labour market in outlining factors which influence the demand for and supply of labour.

The demand for labour services depends both on the demand for the commodity produced by the labour in question, and the productivity of that labour. That is, either an increase in demand for the product or an improvement in the output per unit of labour service leads to an increase in demand for labour, since the employer can thus afford to employ more units of labour at any given wage. Diminishing marginal productivity of labour and the normal downward-sloping demand in the product market combine to yield a downward-sloping demand for labour, as shown in Chart 1 for D_1D_1 and D_2D_2 .

The supply side of the labour market requires more complex treatment. First, a distinction must be made between short-run and long-run labour supply. The short run may be defined as the period within which the total population and its general level of schooling or training does not change. That is, the total quantity of potential workers is fixed. In the long run, these factors may change and hence substantially alter the supply of labour.

The short-run labour supply therefore depends on those factors which determine the labour force participation rate - the proportion of potential workers who will actively seek employment - and the number of hours per week or weeks per year that these workers are willing to provide. The labour force participation rate has been explained in terms of several specific variables which can be collectively described as the individual's relative preference for leisure or for labour income (or more accurately, for the commodities purchased with labour income). The quantity of

labour supplied is assumed initially to increase as wage rates rise, because an increase in the wage rate means that the price of leisure has also risen. That is, there is a greater quantity of goods and services which can be obtained in exchange for one hour of labour, or alternatively, which must be given up if one chooses leisure instead. As the price of leisure increases, an individual "consumes" less of it and offers more labour to the market.

Beyond a certain point the process is reversed; the quantity of labour supplied decreases as the wage rate increases further. At this stage, the individual uses some of his higher income to purchase more leisure. The result is a backward-bending supply curve of labour. However, different individuals' labour supply curves bend backward at various wage rates. Consequently, in the range of wage rates usually observed, the short-run labour supply curve is assumed to be upward sloping, as shown by $S_S S_S$ in Chart 1.

The long-run labour supply is determined by changes in the quantity and quality of the potential workers, specifically by changes in population due to migration, births and deaths, and in the level of education and training. The slope of the long-run labour supply curve is not so obvious as in the case of the short-run supply. However, it is usually assumed that the long-run supply will be much more elastic, or responsive to changes in the wage rate, since the population and its education level may increase substantially at any given wage level, provided that there is sufficient time to adjust to such changes. Migration, education and training require some time to have their effects on labour supply and may be at least partly dependent on non-wage variables.

Under assumptions of perfect competition, with no imperfections in any market, one would expect that the long-run labour supply curve would approach infinite elasticity. This limit would not be reached, however, whenever tastes expectations, and the ability to benefit from training differed among individuals. To the extent that such variation occurs, individuals will enter any given labour market at different wage rates and the long-run labour supply will be less than perfectly elastic. This is represented by $S_L S_L$ in Chart 1.

The interaction of demand and supply in the labour market, as illustrated in Chart 1, determines the equilibrium wage rate, OW_1 , and the quantity of labour that will be exchanged at that rate, OQ_1 . Should there be an increase in demand for labour from $D_1 D_1$ to $D_2 D_2$, the immediate response would be a movement along the short-run labour supply curve, $S_s S_s$. This in turn results in an increase in both the wage rate to OW_3 and in the quantity of labour to OQ_2 . Over the longer run, however, there would be a further increase in quantity to OQ_3 , and the wage rate would fall to OW_2 .

The explanation for occupational wage differentials, and for changes in these differentials, can be sought in terms of the variables which determine supply and demand in the labour markets for different occupations and over various time periods. In Chart 2 for example, one would expect that the wage differential $W_1 W_2$, between the two markets for two different occupations would narrow over time as workers in market B and new entrants to the labour force were induced to move geographically or to obtain the skills necessary to offer their services to market A. The result would be an increase in the labour supply in market A and/or a decrease in the supply in market B. Although the real

CHART 1

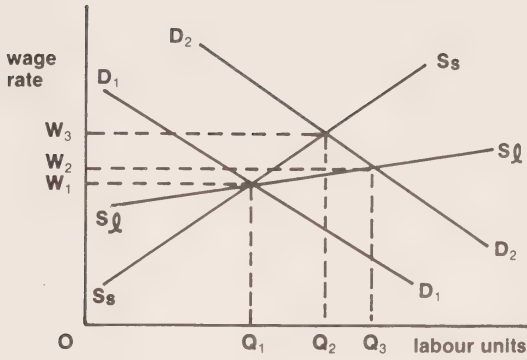
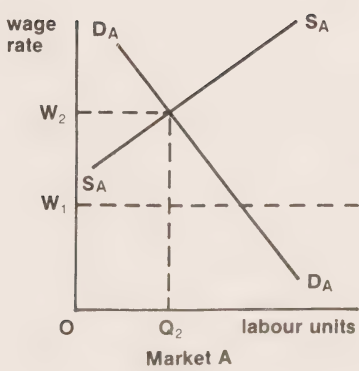


CHART 2



wage could be expected to fall in market A and to rise in market B, the money wage in each would probably rise in inflationary times, though at a slower rate than the general pace of inflation. Studies of occupational wage structures are thus concerned with discovering the variables that explain differences such as W_1W_2 , and those which cause such differentials to change over time.

Shifts in the demand and/or the short-run supply of labour may result in short-run deviations from the long-run equilibrium wage rates. Although these short-run wage rate disequilibria may result in short-run economic gains (economic rents) for some workers, these relative gains or rents are important factors in reallocating workers to the occupations in which relative wages have increased. The processes by which such disequilibria are corrected may differ, depending on the relative wages of the occupation concerned. When the relative wage increases sharply in the short-run (or when economic rents are realized), the wage rate may subsequently rise less rapidly than elsewhere. The training system is one of the major mechanisms for this correction: the higher rents attract more applications or candidates for training or education than there are places available for training; training institutions become more selective; the pressure of increased applications leads to the creation of more places for training; more trained persons are available to the labour market; the wage differential is reduced as the market moves toward the long-run equilibrium.

If the wage of the more highly-trained persons in market A falls in the short-run relative to the wage for market B, the standards for admission to training for market A may be lowered.

Otherwise, no one would undertake the training to enter A, but would go directly to B. The market may also act more quickly to correct the disequilibrium between the relative wages in A and B. That is, there may simply be an increase in the starting wages paid to new entrants to occupation A, with a corresponding decrease in the wage differential between younger and older persons in this occupation.

It is important to analyze the causes of short-run changes in relative earnings because while some of these are temporary, others become incorporated in long-run changes in the wage structure.

It should be noted that at any point in time, the wage structure is the outcome of various market forces which are in turn responding to changes in economic and political conditions. Hence, it is not possible to make a normative determination of an "ideal" wage structure without examining each of the many factors determining the observed structure. As Dunlop and Rothbaum (1955) have pointed out,

"Each wage structure is to be appraised in terms of the context of the economy and the labour market arrangements in which it functions ... A wage structure is to be tested in terms of how well it fulfills the functions that any wage system is intended to perform. These functions have customarily been designated as assisting in the recruitment of a labour force and its allocation among jobs in various occupations, firms and regions, and in sharing the benefits of productivity increases among workers and other

segments of the economy and among various groups of workers."¹

Factors Causing Changes in the Wage Structure

General Pattern of Long-run Narrowing

The pattern widely reported in studies of changing wage structures is a long-run narrowing of the wage differential between skilled and unskilled occupations. This appears to have occurred since 1900 in most industrial countries, with most of the narrowing taking place in the two periods 1915 to 1920, and 1940 to 1950. There is also some evidence that the narrowing was slowed or reversed in the 1950's and 1960's. It should be noted here, however, that there have been very few studies which dealt with wages or earnings in more than a few occupations and over a period of several decades.

The usual explanation for long-run narrowing of wage differentials is based on a "ratchet effect" related to short-run changes. That is, the narrowing of wage differentials which occurs in discrete short-run periods is not reversed in subsequent periods (apparently due to "institutional" or "socio-political" factors) and thus accumulates over long periods.

A more direct theory of the long-run narrowing of wage differentials is based on the industrialization process that has occurred in this

¹ Dunlop and Rothbaum (1955), p. 355.

century. In the first stage of industrialization, skill differentials widen as the demand for skilled workers increases. In the maturing stages of the process, there is a slowing in the rate of increase in demand for skilled workers, while the expanding education system augments the supply of skilled workers at an increasing rate. The growth in demand apparently slows down because the widening of wage differentials in the earlier stages of industrialization leads employers to substitute capital and less-skilled workers for the more skilled.

On the supply side, human capital theory is introduced. The increased skill differentials combined with decreased private costs of education and training result in a higher rate of return on private investment in skill development, and more persons are thus induced to seek training. Where immigration has been restricted to skilled persons, the supply of skilled relative to unskilled workers is further increased. A third factor operating on the supply side over the longer run has been the relative decline in the number of unskilled workers available to urban areas through rural/urban migration.

This explanation is challenged by Ozanne (1962) who argues that American industrialization proceeded at a slower pace than in Europe and hence, American industry had time to train many of its own skilled workers. In addition, unskilled labour was retained in agriculture by the cheap and abundant land resources, while immigration brought primarily skilled workers from industrialized northern Europe during the early stages of industrialization in 1840 - 1890. More recently, mechanization of industry has reduced the demand for unskilled labour

while rural-urban migration has increased ¹the quantity of unskilled labour in the cities.

The reversal of the narrowing trend in the 1950's may have been a lagged response to governmental wage regulations during World War II, combined with a rapid increase in the demand for highly-trained professional personnel. The subsequent massive increase in supply created by governments through expansion of education and training facilities for such personnel may in turn lead to a decline in the relative earnings of such professionals in the 1970's and 1980's. These patterns are generally consistent with the long-term industrialization argument presented above, namely, that in the early stages of a major change in industrial composition, the rapid growth in demand for a certain type of labour will increase the earnings differentials. This then leads to a relatively greater increase in labour supply and a subsequent narrowing of the differential.

Since the evidence generally indicates that changes in the wage structure have occurred during short periods, the emphasis of existing research has been on possible explanations of short-run changes in wage differentials, and thus on the short-run changes in the supply of and demand for skilled workers relative to unskilled workers. Explanations for such changes have focused primarily on economic factors, and particularly on the behaviour of employers under different labour market conditions.

¹Ozanne (1962), pp. 292-93.

Economic Factors

Level of Unemployment.

The general condition of the labour market should obviously be a major factor in explaining changes in wage differentials. However, the effects of a tight or slack labour market have been understood to work through different possible processes which may be summarized as follows:¹

- (a) Skill differentials narrow in a tight labour market due to an increase in the "compensating differential" for the unpleasant jobs which tend to be held by unskilled workers. Thus, while in a slack labour market, workers will accept a smaller compensating differential, in a tight market, they must be paid relatively more² if employers are to fill these jobs.
- (b) The relaxing of standards in hiring new employees in tight labour markets increases the supply of "skilled" labour relative to unskilled. That is, the skilled workers are used exclusively for the functions which they alone can

¹A "tight" market is one in which there is little, if any, unemployment and employers find difficulty in hiring more workers at the prevailing wage. In a "slack" market, there is much unemployment and employers have no trouble finding workers.

²Rees (1973), p. 175.

perform, while the less skilled are hired to carry out some of the functions previously handled by the skilled workers. Moreover, the upgraded workers acquire training such that the skill mix of the labour force is permanently changed and skill differentials narrow accordingly. Rising skill levels have a further permanent effect in that trained workers can acquire further skills more easily. Consequently, there is both a short-run and long-run increase in the quantity of skilled workers relative to unskilled.¹

A special case of the tight labour market effect occurs in wartime when intense on-job training increases the supply of skills quite suddenly, thereby hastening the same narrowing of differentials which would occur with the longer-run expansion of the educational and training systems.²

(c) At any point in time, there exists a "social minimum wage", or the minimum straight-time hourly wage rate at which labour can be hired. This social minimum wage creates a reserve labour force of persons who offer labour at the social minimum, but who are not employed in a slack labour market. In a tight labour market, the reserve labour force is depleted and the social minimum wage must be raised relative to the wages of more skilled workers.³

¹Reder (1973).

²Rees *op cit.*

³*Ibid.*

(d) Employers invest in the training of their workers and also have fixed costs of hiring workers. The more skilled the workers, the greater the cost of training and hiring, and hence the more likely it is that employers will try to retain their skilled workers. Skilled labour is viewed as a semi-fixed factor and is retained during slack labour markets, while unskilled labour is not retained because it can be replaced as required with negligible hiring and training costs. Hence, wage differentials widen in slack labour markets.¹

Inflation.

Periods of high inflation are expected to produce compressed occupational wage structures through the effects of cost-of-living adjustments. To the extent that these are extended to, or are more common in, the lower-wage occupations and especially if such adjustments are on a flat-rate basis, relative earnings are narrowed.²

Productivity Changes.

The influence of improved labour productivity in increasing the demand for labour has been described previously in the simple outline of the labour market model. Obviously, the effect of productivity changes on the occupational wage structure will depend on which

¹ Oi (1962).

² Dunlop and Rothbaum (1955), p. 362.

occupations improve their productivity relative to others, as well as on the subsequent effects of the change in relative wages in terms of the substitution of many different kinds of labour, and between labour and machinery.

Institutional Changes

Unionism.

Unions may have various effects on labour markets and hence alter relative wages in different ways.¹ They can affect wage differentials by influencing the supply of labour through apprenticeship rules, craft jurisdiction, licensing, and other restrictions or deterrents to entry in specific occupations. Ozanne (1962), observes, however, that "there is no consensus among wage theorists on the influence of unionism on occupational differentials".² Unions representing primarily the less-skilled workers have favoured flat-rate wage increases, that is, equal absolute increases regardless of skill level and to the extent that this objective is realized, absolute wage differentials must narrow.³ Union

¹ Rees (1962) especially Chapter IV.

² Ozanne (1962), p. 297.

³ Turner (1964), see also Reynolds and Taft (1956).

resistance to wage cuts has also diminished or prevented the widening of wage differentials which would otherwise be expected to occur in slack labour markets.

The narrowing trend in the skilled-unskilled wage differential has also been explained in terms of the *interdependence* of union wage policies, with specific reference to the construction industry.¹ That is, unions will tend to imitate "reference bargains", or settlements in other unions that are taken as reference points:

"If reference bargains are perceived in some situations in percentage terms and in other situations in absolute terms, interdependence of union policies may tend to reduce the ratio of skilled to unskilled wages. This will be so in the absence of strong market forces that would themselves lead to a considerable narrowing of percentage skill differentials."²

One of the most careful studies of changes in the occupational differentials, however, has concluded that when the interindustrial effect of unions on wages is taken into account, the

¹ Gustman and Segal (1974), p. 267.

² *Ibid.*

degree of unionization had only a minor effect on the occupational wage structure.¹

Minimum Wage Legislation.

Minimum wage legislation might be expected to reduce occupational wage differentials directly by raising the wages of workers at the bottom of the wage structure. However, as numerous studies have shown, the actual effect will depend on the relationship between the legal minimum wage and the prevailing wage of unskilled labour, as well as on the occupations not covered by the regulations, the state of the business cycle, and the ability of employers to take compensating action. Moreover, such narrowing of wage differentials as may be observed shortly after the regulations take effect is later offset by more rapid wage increases in the upper end of the scale.

Custom and Discrimination.

Since custom and discrimination have an impact on wage levels, changes in these factors should also affect the wage structure. Customary wage differentials in hierarchical managerial structures, for example, may be changed as commercial organizations are enlarged, merged, or adopt new functions. However, it has been

¹ Keat (1960), p. 593.

suggested that occupational differentials are stable over the long run because of custom or "social conservatism", and that differentials are changed only temporarily by "major shocks".¹ The methodological problem in analyzing changes in occupational differentials is to separate "custom" from simple stability in differentials due to other market factors.

Discrimination influences labour supply in a variety of forms. Potential workers who lack the desired personal characteristics (colour, race, sex, age, physique, appearance, etc.) cannot offer labour services to a particular labour market and thus supply is lower and the wage higher than would be the case in the absence of discrimination.

Education and Training.

Education and training affect both the demand and the supply sides of the labour market. Labour productivity may be increased through training which in turn would increase the demand for labour and raise the wage rate. This effect is ambiguous, however, because training may be so extensive that the worker concerned is moving from one labour market (less skilled) to another (more skilled). In this case, the supply of less-skilled labour is reduced and

¹Routh (1964).

the supply of more-skilled labour is increased, thus narrowing the wage differential between the two markets.

Immigration.

Immigration policies favouring the admission of persons in skilled trades and professional occupations would result in a narrower occupational wage structure than would emerge from policies which are skill-neutral or favour the unskilled.

Centralized Wage Determination.

In economies or periods in which governments are responsible for wage determination (as in the case of Australia's central wage arbitration board or in wartime wage controls), it is argued that differentials will narrow because the tendency has been to give equal absolute wage increases to all workers. In Australia, occupation wage rates consist of a basic wage plus a differential.¹ When the basic wage rate was raised, the differential was not always changed and the percentage differential was thus narrowed. Similarly, it is often suggested that a major reason for the narrowing of differentials observed from 1940 to 1945 was the government's² policy of granting absolute wage increases.

¹Dunlop and Rothbaum (1955).

²Reynolds and Taft (1956).

Summary of Related Empirical Studies

The question of changes in occupational earnings or wage structures received considerable attention in the 1950's and early 1960's, but relatively less in the past decade. Table 1 summarizes studies which have dealt directly with changes in the structure. Many other studies have examined reasons for differentials in occupation earnings or wage rates at various times but have not considered secular changes in the structure.

Most of the studies reviewed were concerned with the American labour force and used data from the United States Bureau of Labor Statistics surveys of average hourly earnings. These data are calculated by dividing the number of hours worked into the total annual payments in each establishment surveyed. The surveys are based on metropolitan areas which, while including the major areas of the United States, do not constitute a total labour force survey. The occupations included in the surveys are numerous but are concentrated in manufacturing. Moreover, as the summary table indicates, the usual approach is to group occupations arbitrarily into "skilled" and "unskilled" categories and thus to calculate simple ratios of the weighted averages of hourly earnings.

In the Canadian studies, Meltz (1965) and Ostry and Zaidi (1972) have used census data on average annual earnings for the major occupational groups. A later study by Meltz (1968) which

examines changes in the earnings of specific occupations is used as the basis for this study. Peitchinis (1969, 1970) has used data drawn from a variety of sources in one study and from Labour Canada's wage rate survey in a second. This latter survey was also used by Labour Canada to produce its own reports (1967 and 1974) on trends in relative wages.

The British and European studies have been based mainly on wage rate data.

Since different kinds of data and sources were used in these studies, it is not surprising to find a variety of measures used to describe the wage or earnings structures. Several of the studies simply report changes in the ratio of wage rates or average hourly earnings for skilled and unskilled occupations, or for specific occupations compared with a base occupation such as janitors. Gunter (1964) uses the relative quartile deviation: namely, half the inter-quartile range divided by the median. He also reports the "relative span" calculated as both the ratio of the highest to to lowest occupational wage rate and the ratio of the fourth-quartile median to the first-quartile median.

Bell's study (1951) included 25 industries and about 675 occupations. Occupations were ranked within industries in order of remuneration for each year during a given time period (e.g., 1914 - 1920). The percentage change in hourly earnings over this period was then calculated for each occupation, at which point:

"The array of percentage changes in earnings was then divided into thirds and halves, and the percentage changes of groups in each

industry were averaged. Thus, if the average hourly earnings of the top third of workers in an industry increased by 10 percent and the lowest third by 25 percent during any period, it is clear that occupation wage differentials in that industry were narrowed." ¹

Keat's study (1960) in which he used the weighted average hourly earnings for each of 141 occupations to calculate the coefficient of variation for various points in a 40-year period, is the most sophisticated of those reviewed.

The findings of these studies are summarized in Table 1 and Chart 3. In the United States, there appears to have been a narrowing of the earnings structure from 1900 to 1920, followed by a widening in the 1920 - 1932 period, with little change in the 1930's depression. There was subsequently a pronounced narrowing during the 1940's, particularly during World War II, with a return to stability in the 1950's and 1960's. However, there is also some evidence of widening toward the end of the 1960's. The pattern is generally the same for the other countries included in the summary, with two exceptions: there is some evidence of stability (rather than widening) in the 1920's, and of widening in the 1950's and 1960's - notably in Canada and the United Kingdom.

¹ Bell (1951), p. 330-31.

Table 1
Summary of Studies of Trends in Occupational Wage Structures

| Author | Occupations Included | Data and Source | Findings |
|---------------|--------------------------------------|---|--|
| UNITED STATES | | | |
| Ozanne (1962) | Productions Workers | International Harvester Co., A.H.W. company records | 1958-1959: no long-term narrowing widening in prosperity narrow in depression |
| Ober (1948) | Skilled Semi-Skilled Unskilled | AHE BLS records | 1902-1919: narrowing 1920-1932: widening 1932-1940: stable 1940-1947: narrowing |

| | | | |
|-------------------------------|---|--|---|
| Keat (1960) | 141 Occupations in 17 industries (production workers) | AHE BLS | 1903-1956: long-run narrowing but in short-run structure changes inversely to business cycle. |
| Bell (1951) | 600 Occupations | AHE BLS and other data | 1914-1948: conven- tional cyclical mod- el is only rough ap- proximation, and 1929-1933 an excep- tion |
| Dunlop and Rothbaum (1955) | Skilled and Unskilled | BLS | 1938-1952: narrow- ing throughout. |
| Kanninen (1953) | Approx. 30 | AHE BLS for 20 metro. areas | 1947-1953: narrowing |
| Butler and Kim (1973) | Machinists and Electricians; Typists and Keypunch Operators | AHE, AWE BLS for 15 metro. areas | 1951-1969: "rea- sonable stability" (steel spring hy- pothesis) |

TABLE 1 (Cont'd)

| Author | Occupations Included | Data and Source | Findings |
|--------------------------|-----------------------------|--|--|
| Blackmore (1963) | Approx. 60 | AHE BLS | 1953-1962: no change over period. |
| Gustman and Segal (1974) | Skilled vs. Unskilled | Wage Rates BLS | 1953-1970: long-run narrowing (1953-1961) narrowing (1962-1966) stable (1967-1970) widening |
| CANADA | | | |
| Meltz (1965, 1968) | All major occupation groups | Annual Wage and Salary Earnings Census data | 1931-51: narrowing 1951-61: widening for professional and managerial |

| | | | |
|---------------------------------------|---|---|--|
| Ostry & Zaidi (1963, 1972) | All major occupation groups | Annual Earnings Census data | 1931-1951: narrowing 1951-1961: widening |
| Peitchinis (1969) | (1) 16 occupations professional to semi-skilled | AAE various sources | 1947-1965: slight widening 1956-1965: more widening |
| | (2) labourers vs. specific skills | Wage Rates Dept. of Labour | 1939-1946: narrowing 1946-1952: fairly stable 1954-1965: various changes |
| Labour Canada (1967, 1974) | (1) hourly rated job (2) electricians vs. labourers | Wage Rates Wage Rates | 1950-1965: generally stable 1960-1972: stable or widening |
| UNITED KINGDOM | | | |
| Phelps Brown and Hopkins (1950) | Bldg. craftsmen and labourers | Wage Rates various sources (Southern England) | 1264-1954: long run stability |

TABLE 1 (Cont'd)

| Author | Occupations Included | Data and Source | Findings |
|----------------------------|-------------------------------------|-------------------------------|--|
| Knowles & Robertson (1951) | Skilled vs. unskilled (plus police) | Wage Rates various sources | 1880-1954: stable 1914-1920: narrowing 1921-1937: stable 1938-1946: narrowing 1946-1950: stable |
| Routh (1964) | Wide range of occupations | Various Sources | 1914-1920: narrowing 1920-1923: widening 1924-1933: widening 1934-1944: narrowing (esp. 1938-1940) 1944-1950: stable 1950-1956: narrowing 1956-1960: widening |

Mansfield
(1957) Skilled vs.
unskilled

Wage Rates
various sources
(53 industries)

1948-1954: nar-
rowing, but less
than in WW II

EUROPE

Dunlop and
Rothbaum (1955) Skilled and
unskilled

Various Sources

Italy:

1938-1952: narrowed
then widened

France:

1938-1952: narrowed,
widened and narrowed

Gunter (1964) Skilled and
unskilled

Wage Rates
ILO

12 countries long-
run decline
1938-1962: beginning
to widen again
1938-1946: narrowing
1946-1962: stable

TABLE 1 (Cont'd)

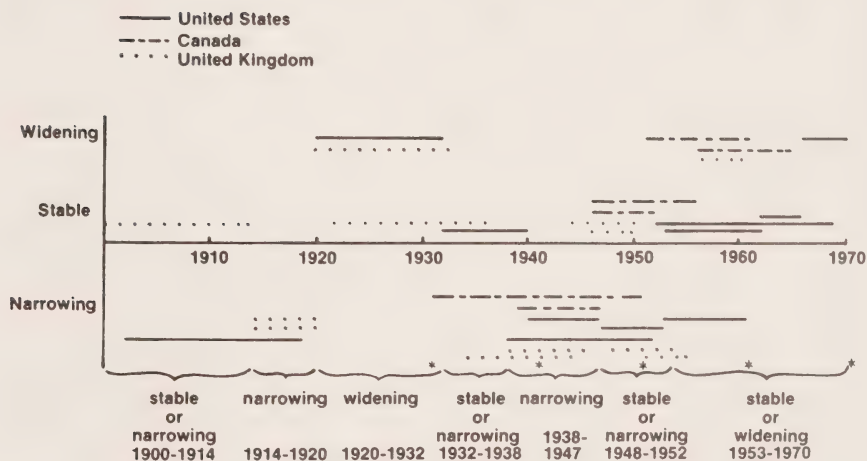
| Author | Occupations Included | Data and Source | Findings |
|--------------|--------------------------|--|---|
| AUSTRALIA | | | |
| Oxman (1950) | Skilled and unskilled | Min. Weekly Wage Rates (Melbourne) | 1914-1919: narrowing 1920-1929: stable 1930-1934: widening 1935-1939: stable 1940-1946: narrowing |

Key

AHE, average hourly earnings
 AHW, average hourly wage
 AWE, average weekly earnings
 AAE, average annual earnings
 BLS, United States Bureau of Labor Statistics
 ILO, International Labor Organization

CHART 3

Diagrammatic summary of studies of trends in occupational wage structures



* Census years included in this report.

Source: Table 1

CHAPTER II

Occupational Earnings Data: Sources and Problems

A fundamental consideration in making historical comparisons of relative earnings by occupation is the availability of data. This chapter outlines the major sources of data which were used and the problems encountered with these sources.

The Decennial Census

The only comprehensive source of earnings data for detailed occupations is the decennial population census. This chapter begins by summarizing the approach used to obtain data from the census for comparable occupations over the period 1931 to 1971. Several aspects of these data must be examined in order to put the results into an appropriate perspective for analytical purposes; these include: comparisons of occupational earnings; intra-occupational dispersion of earnings; earnings versus wage rates. Since census data do not include fringe benefits other means of obtaining such information are considered. Finally, the extent and type of alternative data sources is explored.

Conversion of Occupational Classification for Inter-censal Comparability

Each decennial census since 1931 has contained a new classification of occupations. In some cases the changes were small, while in others there were fundamental revisions in the approach to occupational classification. To compare earnings data by occupation over time, occupations must have been defined in the same way at the various points in time. If not, how much of a change in earnings was genuine and how much resulted from a different definition of the occupation cannot be determined.

The problem of comparability is particularly complex in the case of the 1971 and 1961 censuses. Out of the 486 occupation classes in the 1971 census only nine classes are precisely comparable¹ at the most detailed level for which data are tabulated. One reason for this lack of comparability is the change in the role of the census occupation classification manual. Prior to the 1971 census, the manual prepared for each census was used only to count people. Other classifications were used² for placement work in Canada Manpower Centres, and for the

¹The nine occupations are: postmasters; dentists; nurses-in-training; optometrists; service station attendants; commissioned officers; other ranks - armed forces; bartenders; bus drivers.

²Various issues of the United States *Dictionary of Occupational Titles* were used by Canada Manpower Centres until 1973.

measurement of wage and salary rates.¹ In the mid-1960's, a single occupational classification manual was developed in Canada which could be used both for counting people in the census and in the Labour Force Survey, as well as for placement work in the Canada Manpower Centres;² a classification which could be used by all the federal government agencies. The result was the *Canadian Classification and Dictionary of Occupations 1971 (CCDO)*.³ In preparing the CCDO with its combination of objectives, a major break occurred in the historical continuity of census occupational classifications. Not only were the number of classes increased but some major conceptual changes took place as well. For example, whereas the 1961 census contained a separate major group designated as labourers (excluding those engaged in primary occupations), in 1971 there is no such separate group. Instead, each relevant minor group contains a unit group, "Occupations in Labouring and other Elemental Work".

¹Labour Canada developed its own classification for its Wage Rate Survey. Since 1973, the Department has incorporated the new CCDO definitions while retaining the same titles as before.

²The Labour Force Survey has always used the census occupation classification. After each census a new occupation classification was introduced in the Labour Force Survey with one year of overlapping tabulations between the old and new classifications. The most recent year of overlapping classifications was 1973.

³Department of Manpower and Immigration (1971).

A major task in the study was to obtain 1971 data on occupations which would be comparable to figures from earlier censuses. In a previous study, Meltz had presented earnings and other data on more than 100 occupations which were comparable among censuses from 1931 to 1961.¹ Our job was to determine how many of the 1971 occupations were comparable with those in the Meltz study and for how many others the classification could be made comparable to 1961, though not to earlier years. We had intended to use the results of Statistics Canada's re-coding on a 1961 occupation basis of a sample of 109,500 returns from the 1971 census. However, since the retabulation had not been completed when this study was undertaken, an alternative approach was developed in order to expand this list of only nine occupations which were exactly comparable between 1971 and 1961.² The list of 52 occupations which is used in this study is shown in Table 2, while details of the occupation conversion method are presented in Appendix B. When data from Statistics Canada's retabulation become available, they will supplement the work here since income will be tabulated for only the 14 major occupation groups, while numbers of

¹ Meltz (1968).

² For a discussion and tables on the comparability of major occupational groups in the 1961 and 1971 census classifications see Statistics Canada, *The Labour Force*, August 1973, pp. 63-73.

Table 2
Occupations Comparable between Censuses,
1931 to 1971 and 1961 to 1971

| | |
|--|--|
| <u>Managerial</u> | <u>Transportation and Communication</u> |
| * Postmasters | Air Pilots, Navigators and Flight Engineers |
| <u>Professional</u> | Locomotive Engineers and Firemen |
| Architects | Deck Officers |
| Engineers - | Engineering Officers, Ship |
| Chemical | Engine and Boiler-Room Crew, Ship |
| Civil | |
| Electrical | Bus Drivers |
| * Physicists | Taxi Drivers and Chauffeurs |
| * Biologists and Related Scientists | Subway and Street Railway Operating Occupations |
| Physicians and Surgeons | |
| Dentists | Telegraph Operators |
| Nurses, Graduate | Mail Carriers |
| Nurses-in-Training | |
| * Optometrists | <u>Agricultural</u> |
| Judges and Magistrates | Farmers (Employers or Own Account) |
| Lawyers and Notaries | <u>Fishing, Hunting, Trapping</u> |
| * Economists | Fishermen |
| * Systems Analysts, Computer Programmers | |
| * Dieticians and Nutritionists | <u>Manufacturing and Mechanical</u> |
| Professors and Teachers | Flour and Grain Milling Occupations |
| <u>Clerical</u> | * Fish Canning, Curing and Packing Occupations |
| (Secretaries and Stenographers | Metal Rolling Occupations |
| (Typists and Clerk-Typists | Tool and Die Making Occupations |
| <u>Commercial and Financial</u> | Motor Vehicle Mechanics and Repairmen |
| * Newsboys | * Radio and Television Service Repairmen |
| Service Station Attendants | |
| * Insurance Salesmen and Agents | Typesetters and Compositors |
| * Salesmen and Traders, Securities | Power Station Operators |
| | * Motion Picture Projectionists |
| <u>Service</u> | <u>Construction</u> |
| Personal - | (Brick and Stone Masons |
| * Bartenders | (Concrete Finishing and Related Occupations |
| Barbers, Hairdressers and Related | Plasterers and Related Occupations |
| Protective and Other - | Inspecting, Testing, Grading and Sampling Occupations, Construction, Except Electrical |
| Fire-Fighting Occupations | |
| Policemen and Detectives | |

Source: see text for discussion of occupational comparability.

* Not comparable with 1951 and earlier censuses.

persons by sex will be shown only for detailed occupations with 5,000 persons or more.¹

Characteristics of Comparable Occupations

The comparable occupations over several censuses seem to be those which are least affected by technological change, and in which the job function has thus remained similar over time. Many of the occupations in fact now use a great deal of equipment and are assisted by paraprofessionals, as in the case of physicians and surgeons and dentists. The comparable occupations also tend to be those in which a service is provided directly to the consumer as opposed to the labour being indirectly used to produce a particular product. In this sense, for example, the occupations of physicians, dentists, professors and school teachers, service station attendants, firemen, barbers and hair-dressers, and bus drivers are comparable. Occupations in which the services are indirect, on the other hand, include civil and electrical engineers, stenographers and typists, plasterers and lathers.

The detailed occupations included in this study tend to have above-average earnings. Of the 48 occupations for which wage and salary data were available, 31 had earnings exceeding 110 per cent of the overall 1971 average, with another seven occupations between 100 and 110 per cent. Table 3 shows that most of the comparable occupations are located in three occupational

¹ Further information in the recoding can be obtained from Mrs. Amy Kempster, head of the Economic Characteristics Section, Census Characteristics Division, Statistic Canada.

Table 3
Representation of Selected Comparable Occupations
Among Occupation Groups in 1961

| Occupation Group | Distribution of Selected Occupations | Number in Labour Force | | |
|---------------------------------|---|------------------------|--------------------|------------------------------------|
| | | Total in Group | Selected Number | Occupations Percent of Group |
| All Occupations ^a | 49 | 6,342,289 | 1,387,024 | 22 |
| White Collar | | | | |
| Managerial | 1 | 500,911 | 6,087 | 1 |
| Professional | 15 | 634,271 | 314,364 | 50 |
| Clerical | 1 | 818,912 | 216,424 | 26 |
| Commercial & Financial | 4 | 492,628 | 59,361 | 12 |
| Manual | | | | |
| Manufacturing & Mechanical | 9 | 1,036,942 | 145,116 | 14 |
| Construction | 3 | 335,877 | 40,947 | 12 |
| Labourers | 0 | 343,843 | 0 | 0 |
| Transportation & Communication | 10 | 496,823 | 83,750 | 17 |
| Service | | | | |
| Personal | 2 | 588,419 | 51,501 | 9 |
| Protective & Other ^a | 2 | 95,514 | 44,273 | 46 |
| Primary | | | | |
| Agricultural ^b | 1 | 648,910 | 393,394 | 61 |
| Fishing & Trapping | 1 | 36,977 | 31,807 | 86 |
| Logging | 0 | 79,682 | 0 | 0 |
| Mining | 0 | 64,611 | 0 | 0 |
| Not Stated | 0 | 167,969 | 0 | 0 |

Source: Civilian Labour Force data from Noah Meltz, *Manpower in Canada, 1931-1961*, Table A.4, p. 58; and 1961 *Census of Canada*, Vol. III, Part 1, No. 94-503, Table 6.

^a Excludes Armed Forces

^b While the occupation "farmers and stockraisers" is comparable between 1961 and 1971 and is included in this table, it is excluded from the study as a whole because earnings data are not available in 1961.

groups: professionals, manufacturing and mechanical, and transportation and communication. The percentage representation is also substantial in three other groups: fishing, protective service, and to a lesser extent, clerical.

There are, of course, other occupations which would probably display similar characteristics and yet are not included, for example, accountants, radio and T.V. announcers, guards and watchmen. Unfortunately, the classification manuals do not provide a basis from which to establish comparability in all of these cases.

While the list of occupations in Table 2 is not statistically representative of occupation groups, it does provide a starting point for general comments on trends in earnings and numbers of persons. The biggest gaps in the sample lie in the manual occupations, particularly in the skilled and semi-skilled trades, because the major 1971 revision of the classification combined various levels of skills into classes which deal with particular functional areas (for example, a plumber's helper is classified as a plumber, whereas in 1961 the helper was included with unskilled labourers). The recoding of occupations being done by Statistics Canada should provide information on a much wider range of occupations. In addition, current work at Labour Canada will complement this study by providing an analysis of trends in occupational wage rates.

Earnings Data from the Census

The census earnings data used in this study are wage and salary earnings because these are the only consistent figures which are available

Table 4

Percentage of the Labour Force in each Occupation Group Reporting Wage and Salary Earnings, 1931-1961

| | 1931 | 1941 | 1951 | 1961 |
|----------------------------------|------|------|------|------|
| All Occupations | 63 | 66 | 73 | 78 |
| Managerial | 29 | 35 | 41 | 49 |
| Professional | 66 | 71 | 77 | 83 |
| Clerical | 98 | 99 | 98 | 98 |
| Commercial and Financial | 86 | 90 | 90 | 89 |
| Manufacturing and Construction | 87 | 89 | 91 | 93 |
| Labourers | 96 | 97 | 97 | 98 |
| Transportation and Communication | 91 | 92 | 91 | 92 |
| Service | 81 | 82 | 87 | 87 |
| Agricultural | 17 | 16 | 15 | 18 |
| Logging | 95 | 89 | 84 | 91 |
| Fishing | 21 | 16 | 19 | 35 |
| Mining | 93 | 94 | 97 | 96 |

Source: Noah M. Meltz, *Changes in the Occupational Composition of the Canadian Labour Force, 1931-1961*, p. 40.

^a Data for 1971 are not comparable with 1931 to 1961 due to change in the classification of broad occupational groups.

back to 1931. With the exception of the proprietary and managerial, agricultural, and fishing occupation groups, wage and salary earners represented over 80 per cent of the labour force reporting earnings in 1971. The data are shown by occupational groups in Table 4. In Chapter III, 1961 and 1971 earnings data for self-employed persons are presented for a number of occupations.

Time-series data reflect the economic conditions prevailing when the data were collected. The census data present an acute problem of this kind because of the 10-year intervals between observations, and because the censuses took place under widely differing economic conditions. The latter might be characterized briefly as follows recalling that with the exception of the 1971 census, the earnings data are for the 12 months preceding the census:

1930/31 - end of 1920's industrialization
and early stage of 1930's depression;

1940/41 - end of depression and early
stage of wartime production;

1950/51 - peak of Korean war inflation
following post-war recession;

1960/61 - midway in 1958-62 recession;

1970 - midway in stagflation of 1966-
1975.

The brief review of empirical studies in Chapter I showed that conclusions about changes in the wage structure could differ substantially with small variations in the time periods selected for the comparisons. While this problem diminishes with longer time

periods, comparisons of wage structures over only one decade must take into account the very different economic conditions prevailing at the beginning and end of any of the decades in question.

Some of the change in earnings could simply be the result of a different number of weeks worked as opposed to changes in the earnings of full-time employees. While data on number of weeks worked is available, it is not possible to obtain a cross-classification of earnings by weeks worked for the earlier censuses. It is thus implicitly assumed that the relative structure of weeks worked among occupations did not change markedly between censuses. In an earlier examination, Meltz found that in the case of the major groups, the numbers of weeks worked were similar, with a few important exceptions. For example, while most occupations reported fewer weeks worked in 1941 than in 1931, there were increases in the war-related occupations: manufacturing and construction, labourers, and mining.² Few of the selected occupations in this study fall within these groups.

Differences in earnings also arose from the fact that many women work on a part-time rather than full-time basis. This changes both relative occupational earnings and male-female earnings differentials. Although historical data cannot be adjusted to take this into account, different female participation rates among occupations is discussed as a factor

¹ See also the latter part of Chapter IV for evidence on changes in the earnings structure in inter-census years.

² Meltz (1965), p. 46.

underlying some changes in relative earnings, particularly in the personal service occupations.

A more general question concerns the reliability of certain kinds of census data. Earnings data obtained from household surveys are subject to possible biases in reporting. Some are deliberate and others innocent, such as forgetting or never knowing precisely the earnings of the household head. Since the 1971 census asked for earnings in the preceding calendar year, the effect of forgetting was minimized because the survey occurred shortly after income tax returns were filed. Errors due to forgetting or guessing are therefore likely to be less serious in 1971 than in the earlier surveys where individuals were asked for earnings in the 12 months preceding the census. The extent of deliberate incorrect reporting would be virtually impossible to determine.

The use of either mean or median earnings will influence the shape and historical behaviour of a wage structure because the intra-occupational distribution of earnings varies among the occupations considered. Mean earnings were reported for each census except 1951, when the median earnings were reported. In 1931 and 1961, only the means were available. An examination of the data for years in which both measures of the average are available suggests that the different measures of ¹relative earnings are generally very similar.

A related problem concerns the method in which the census data are recorded. Miss Jenny

¹ *Ibid*, p. 131.

Podoluk of Statistics Canada¹ brought to our attention some difficulties relating to the earnings classes used to record wage and salary data in 1951 and 1961:

"The 1951 Census did not ask for actual earnings but asked respondents to indicate the size group into which earnings fell. The open end class was \$6,000. I did an evaluation of the 1951 Census data comparing the results with the income tax returns filed by wage earners and with the earnings distribution from the 1951 Survey of Consumer Finances. The conclusions I reached were that the statistics were downward biased."²

Since the 1951 data in this study are medians, the downward bias should be reduced. Unfortunately, there does not seem to be an adequate basis for estimating the extent of the bias or for making adjustments.

The 1961 census also presents a problem arising from the open-ended earnings group, in this case \$15,000 and over. Miss Podoluk indicated that those earning above \$15,000 were arbitrarily assigned earnings of \$15,000. As Miss Podoluk notes, "This means that in those occupational groups with higher proportions of earners in these groups the published averages are likely too low". As an alternative, she

¹ Miss Podoluk is the Director-General of Statistics Canada's Household Statistics Branch.

² Letter from Miss Podoluk to the authors, October 24, 1977.

suggests the use of data based on the 20 per cent sub-sample of the population which is presented in Volume 4.¹ Although this is a possibility, we decided to retain the original census earnings data for the following reasons. First, as Miss Podoluk points out, some differences could arise from the fact that the wage and salary data in this study are based on 100 per cent coverage whereas the alternative is a 20 per cent sample which also has some conceptual differences in the income definition. Secondly, the alternative calculation requires the subtraction of the earnings of the self-employed and these are not shown where there are less than 250 persons. The result in a number of occupations could be an over-estimate of average earnings because some self-employed were included. Thirdly, a recalculation using the alternative method produces almost the same relative earnings when the revised earnings in each occupation are related to the revised earnings for the total of all employed persons. For example, the relative earnings of male pilots remain the same at 229 in 1961 (as is shown in Table 7). In the case of male lawyers, there is an increase in relative earnings from 201 to 215; the figure cannot be calculated for all lawyers, however, as the number of self-employed female lawyers is not shown.

¹ In order to obtain estimates of average wage and salary earnings, total employment earnings of wage earners would have to be divided by the number of wage earners.

Methodological Questions on Earnings Data

Comparisons of Occupational Earnings

Once comparable earnings data by occupation are obtained, the next question concerns the most appropriate measure by which to examine the structure of earnings. Unfortunately, no single measure of changes in the structure of earnings is appropriate for all cases. Earnings ratios are often used for ease of understanding and comparison. The most common approach to calculating such ratios has been to select a base occupation, such as unskilled labour, with which all other occupations can be compared. While this has some conceptual appeal, it presents a major difficulty if the base occupation is not defined consistently over the time period concerned. This problem is encountered in the 1971 census: the common labourer category was abolished and distributed among the relevant occupational groups.

An alternative base for calculating earnings ratios is the average earnings for the total labour force. Although it is more convenient to include the earnings of the occupation in question when calculating the labour force average earnings, it is preferable to exclude the earnings for each subject occupation in turn. This presents a more accurate measure of how a given occupation has fared relative to the average for all other occupations, particularly when the subject occupation represents a significant share of the total labour force. In this study, however, the average earnings for a specific occupation are expressed as a ratio of the average earnings for the total labour force, without subtracting the earnings of the occupation in question. This approach was

followed for two reasons. First it is consistent with the earlier studies by Meltz (1965, 1969) which permits comparisons. Secondly, each of the specific occupations included in the study contains less than one per cent of the labour force with only three exceptions. Since a recalculation shows virtually no difference between the two bases for calculations of relatives, we decided to use the total labour force.¹

A third method used for measuring changes in the wage structure is the coefficient of variation in the average earnings of a large

¹ The following table contains the relative earnings for the three largest occupations from Table 8 and the relative earnings based on the exclusion of the occupation to be compared.

| | 1971 Total Labour Force (Table 8) | Occu- pation Excluded | 1961 Total Labour Force (Table 8) | Occu- pation Excluded |
|--------------------------|--|-----------------------------|--|-----------------------------|
| Nurses | 92 | 92 | 88 | 88 |
| Professors & Teachers | 138 | 140 | 133 | 134 |
| Secretaries, Stenos | 71 | 70 | 81 | 81 |

number of occupations.¹ However, this method is not suitable for a small number of occupations, or when the purpose of the study is to determine changes in the relative earnings of specific occupations rather than changes in the occupational wage structure as a whole.

Intra-occupational Dispersion of Earnings

When the emphasis is on the earnings experience of individual occupations, the question of changes in the dispersion of relative earnings within occupations is important. Even if the occupational wage structure, expressed in terms of ratios of median earnings, has not changed over a period of time, the intra-occupational dispersion of earnings may have altered. Such a change could also be measured by the coefficient of variation, using all earnings reported for individuals within an occupation. A more common measure is the coefficient of dispersion. This is the interquartile range divided by the median, where the interquartile range is the range within which the middle 50 per cent of the occupation members are to be found.²

¹ The coefficient of variation is the standard deviation divided by the mean. Hence, an increase in the coefficient of variation would indicate that there was a widening in the occupational differentials for at least the majority of occupations.

² See for example, Ostry and Zaidi (1972), p. 275.

Earnings Versus Wage Rates

A study of changing wage structures could be based on a variety of measures of labour remuneration, the most common of which are actual earnings or basic salary and wage rates. Earnings data have some advantages over wage rate data:

- (i) They represent the actual income derived from labour force participation and for whatever time period is appropriate. That is, earnings data include piecework payments, commissions, and supplementary payments for overtime, bonuses, etc; they also implicitly take account of periods of unemployment.
- (ii) Earnings data can be directly comparable among occupations for any given time period, whereas wage rates change at different times for different occupations. Conversely, the wage rate structure for a specific point in time may seriously misrepresent the structure of relative remuneration over time.
- (iii) Use of earnings data makes it possible to include the earnings of self-employed persons, or occasional self-employment earnings of employees.
- (iv) In periods of low unemployment or of wage controls, earnings tend to rise relative to the bargained or officially-sanctioned wage rates, in

what has been termed "wage drift":

"In a sense the 'market' is correcting the decisions of collective bargaining or the government. The more centralised the decision-making machinery of a country, the larger the difference is apt to be between the formal and the actual wage structure at full or 'over-full' employment. The greater the degree of 'suppressed inflation' at full employment, the greater the wage drift'."¹

There are also disadvantages in using earnings data:

- (i) Earnings data ought to be gathered through surveys of individuals, and hence are more difficult to collect. The earnings data collected from employers are usually obtained by dividing total payments to employees by the number employed. Wage rate data can be obtained from employers, and in many cases, for large groups of employees.
- (ii) The reliability of earnings data may be subject to question. Individuals may incorrectly recall or deliberately overstate or understate their earnings. Although the reported values may not differ substantially from the true values in many cases, it is important to be aware

¹ Dunlop and Rothbaum (1955), p. 363.

of any systematic biases in reporting by individuals in different occupations.

Fringe Benefits

Ideally, an examination of labour compensation should go beyond wages or earnings to include fringe benefits since wages plus fringe benefits are the true measures of real incomes from employment. The first chapter noted that the total labour compensation structure was a more meaningful concept than the structure of wages or earnings, but that it would be quite difficult to estimate whether the two structures were behaving in similar ways.

In the past two decades, employee benefits have increased from 15 per cent to 31 per cent of the gross annual payroll in Canada.¹ The variation among industries in the relative magnitudes of fringe benefits is substantial: fringe benefits as a percentage of the gross annual payroll in 1975-76 varies from 21 per cent in the construction industry to 38 per cent in mining. Table 5 shows the composition of such fringe benefits and the variation among the

1

Financial Post, 7 October 1976, citing a report by Thorne Riddell Associates Ltd., *Employee Benefit Costs in Canada, 1975/76*. The report is based on 155 companies employing nearly 600,000 persons. Fringe benefits in these studies do not include items for which it is difficult to estimate a specific value, such as free or subsidized meals, merchandise, and services, and employee stock options.

Table 5
Composition of Average Total Compensation, for all
Industries and Selected Industries, Canada, 1976

| | <u>All Industries</u> | <u>Manuf.</u> | <u>Constr.</u> | <u>Transp. Comm.</u> | <u>Trade</u> | <u>Educa. Health Welfare</u> | <u>Commerc. Services</u> | <u>Public Admin.</u> |
|--|---------------------------|---------------|----------------|--------------------------|--------------|--------------------------------------|------------------------------|--------------------------|
| DIRECT PAYMENT TO EMPLOYEES | | | | | | | | |
| Basic pay | | | | | | | | |
| - actual | \$10,845 | \$10,498 | \$14,242 | \$11,888 | \$9,970 | \$11,659 | \$9,009 | \$10,929 |
| - percentage | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Commissions, incentives | 2.4 | 2.3 | 0.8 | 0.5 | 6.7 | 0.0 | 3.8 | 0.0 |
| Overtime & premium pay | 4.5 | 6.3 | 6.0 | 7.2 | 1.8 | 1.4 | 3.1 | 4.8 |
| Paid holidays, vacation, sick leave & other pay | 12.6 | 11.9 | 10.0 | 13.3 | 10.5 | 14.1 | 11.3 | 15.2 |
| Bonuses, severance pay, other benefits | 2.2 | 2.6 | 2.7 | 2.4 | 2.5 | 1.6 | 2.7 | 1.6 |
| Total Gross Payroll | 121.7 | 123.0 | 120.2 | 123.6 | 121.6 | 117.1 | 120.7 | 121.6 |
| EMPLOYER CONTRIBUTIONS | | | | | | | | |
| Workmen's Compensation | 1.5 | 2.1 | 2.9 | 1.4 | 1.0 | 0.4 | 0.8 | 0.8 |
| Unemployment insurance | 1.6 | 1.7 | 1.4 | 1.6 | 1.7 | 1.5 | 1.6 | 1.7 |
| Canada or Que. pension plan | 1.2 | 1.3 | 0.9 | 1.1 | 1.3 | 1.1 | 1.3 | 1.2 |
| Private pension plans | 4.4 | 3.6 | 2.2 | 9.1 | 2.4 | 3.5 | 2.2 | 8.4 |
| Other life, health & other plans | 1.9 | 2.7 | 1.5 | 2.4 | 2.0 | 1.0 | 1.7 | 1.2 |
| Total Compensation | 132.3 | 134.4 | 129.1 | 139.1 | 129.9 | 124.6 | 128.3 | 134.8 |
| RELATIVE EARNINGS (INDUSTRY AVERAGE AS PERCENTAGE OF ALL- INDUSTRY AVERAGE) | | | | | | | | |
| Basic pay | 100 | 97 | 131 | 110 | 92 | 108 | 83 | 101 |
| Gross payroll | 100 | 98 | 130 | 111 | 92 | 103 | 82 | 101 |
| Total compensation | 100 | 98 | 128 | 115 | 90 | 101 | 81 | 103 |

Source: Statistics Canada, *Labour Costs in Canada - All Industry* (No. 72-618):

components for selected industries.¹ Note, for example, the variation in pension plan contributions.

Since occupations tend to be represented disproportionately among various industries, similar differences in the relative magnitudes of fringe benefits could be expected among occupations. Moreover, with the increasing importance of fringe benefits in the total compensation for employees, one would expect to find major changes in the occupational compensation structure due to the effect of fringe benefits alone.

The fringe benefits problem does not arise directly in comparisons of self-employment earnings, but as the percentage of self-employed persons within an occupation changes, the average compensation for all persons included in that occupation will also change.

Other Data Sources

Other sources of data on earnings by occupation were examined to determine whether they could either be integrated with the census series or used to provide supplementary evidence on

1

A question on fringe benefits was included in the 1974 Consumer Finance Survey but the data have not been published. This could provide information on fringe benefits, at least by broad occupation group.

changing earnings structures.¹ Regrettably few sources offered earnings data which would be appropriate for this study. Remuneration data were frequently in the form of wage rates or basic salaries, or were simply averages based on total annual payrolls and number of employees. Such data could not be combined with earnings data in an integrated series. Several surveys provided data for only one year or a few years at irregular intervals. In other cases, the sample from which the data were drawn was of doubtful validity. The comparability of occupational titles over a number of years and with the census classifications was also in doubt. Some individual industry studies included a number of occupations, but only for that particular industry (for example, in the areas of hospital administration, hospital nursing, urban transit, railway transport, and air carriers).

The sources which appeared potentially useful were the reports on taxation statistics of Revenue Canada-Taxation, the publications based on the Consumer Finance Surveys, the reports of the Pay Research Bureau of the federal public service, and the Highly Qualified Manpower Survey of 1973. The value of the latter is limited to the extent that earnings data are for university graduates only and are not directly comparable with a similar 1967 survey. The Pay Research Bureau reports cover the periods 1958 to 1968 and 1967 to 1975, and include the basic salaries or wage rates for about 20 occupations, most of which were not among the selected occupations for which census data were used. Earnings and income data from

¹ The major reference for locating other data sources was Statistics Canada, *Guide to Federal Government Labour Statistics*, 1972, No. 52-512.

the taxation statistics and the Consumer Finance Surveys were, in fact, used in this study, and are discussed in the following sections.

Earnings Data from the Taxation Statistics

In order to investigate the behaviour of the occupational structure of earnings since the 1971 census, it was necessary to find an alternative source of reasonably comparable data. The *Taxation Statistics* published annually by Revenue Canada - Taxation provides this source, and, moreover, offers data annually so that year-to-year changes in the earnings structure can be examined.

The occupational classification system for the taxation statistics is based on two factors (i) the response to questions asked on income tax returns concerning type of work, business or profession and the name of employer and (ii) the source of the largest single component of the individual's gross income. This differs from the census classification of occupations based on the work activity at which the individual spends the largest part of his/her time. Since no guidance is provided for the respondent in describing his type of work, only broad occupational categories can be used.

The first report of taxation statistics was for the year 1941. The occupational categories for 1941 to 1945 were quite different from those used in later years. Although these categories have been fairly consistent since 1946, the analysis presented here begins at 1950 to coincide with the intervals of the decennial census. The 1951 and 1961 censuses asked for earnings in the 12 months prior to the June

survey date, while earnings reported through the tax returns are for the calendar year. Hence, earnings data from the tax statistics were averaged for 1950 and 1951 and for 1960 and 1961 to provide earnings data which would be comparable with the census data for 1951 and 1961. As noted previously, the 1971 census sought earnings information for the calendar year 1970, thus affording direct comparisons with the 1970 tax returns.

The data reported in *Taxation Statistics* are based on a 10 per cent sample of most of the tax returns, although the sample size is increased at higher income levels.

The earnings data presented in this study are selected from the tabulations of income sources in order to arrive at a measure of employment income. The income sources included vary by occupation: for self-employed professionals, earnings include wages and salaries and net professional income; for farmers and fishermen, the income categories are wages and salaries, business income, professional income, commission income, and farming or fishing income; for salesmen, the categories included are wages and salaries and commission income; for business proprietors, the appropriate categories are wages and salaries and business income; and for employees, only wages and salaries are included. In the case of the data since 1970, commissions from employment and other employment earnings have been added for each occupation. Thus, for example, farming income was excluded from the earnings data for all occupations except farmers because such income (in many cases a negative value) seemed to be associated with leisure activities. For the total group, however, all sources of employment income were included. Since this total provides the average earnings figure with which the

average for each occupation is compared, the relative earnings calculated from these adjusted data might seem to be understated. However, due to the overwhelming magnitude of wages and salaries in the total figure, this effect is negligible.

The tax statistics also include as "occupations" some categories related to non-employment income: investors, property owners, pensioners, estates and unclassified. Persons in these categories received the majority of their incomes from interest, rent, pensions, or unemployment insurance. In 1975, of the total of all persons in these categories, each received an average of about \$625 as employment income. These groups were thus excluded in calculating the average earnings of the total labour force.

Earnings data were included from the non-taxable as well as the taxable returns in order to include earnings at the lower end of the income range where deductions may exceed income.

The population data are presented under the title of "persons" rather than "labour force" because the numbers refer to persons who have filed income tax returns rather than to those who have been questioned on their labour force status. This distinction together with the exclusion of groups such as pensioners largely explain the discrepancy between the total persons reported here and the total labour force reported from census data.

Comparison of Census and Taxation Data

Census and taxation data on average annual earnings and number of persons were compared

Table 6

Comparison of Average Earnings and Numbers Employed as Reported in the Census and Taxation Statistics, Males and Females Combined, Canada, 1960/61 and 1970, Selected Occupations

| | 1960/61 | | | 1970 | | |
|--------------------------------------|-----------|-----------|------------------|-----------|-----------|------------------|
| | CENSUS | TAX | C:T ^b | CENSUS | TAX | C:T ^b |
| AVERAGE ANNUAL EARNINGS ^a | \$ | \$ | | \$ | \$ | |
| Self-Employed | | | | | | |
| - Doctors & Surgeons | 17,673 | 15,365 | 1.15 | 32,317 | 33,644 | .96 |
| - Lawyers & Notaries | 12,550 | 13,060 | .96 | 23,536 | 24,611 | .96 |
| - Dentists | 13,132 | 11,339 | 1.16 | 22,537 | 21,625 | 1.04 |
| - Fishermen | 1,902 | 2,559 | .74 | 3,452 | 3,942 | .88 |
| Employees | | | | | | |
| - Teachers & Professors | 4,214 | 4,056 | 1.04 | 7,357 | 7,726 | .95 |
| TOTAL | 3,597 | 3,474 | 1.04 | 5,391 | 5,529 | .98 |
| NUMBER OF PERSONS ^a | | | | | | |
| Self-Employed | | | | | | |
| - Doctors & Surgeons | 12,410 | 14,852 | .84 | 14,640 | 19,504 | .75 |
| - Lawyers & Notaries | 7,963 | 7,486 | 1.06 | 8,945 | 9,554 | .94 |
| - Dentists | 4,626 | 4,804 | .96 | 4,825 | 5,747 | .84 |
| - Fishermen | 17,695 | 8,837 | 2.00 | 14,240 | 17,238 | .83 |
| Employees | | | | | | |
| - Teachers & Professors | 178,839 | 154,438 | 1.16 | 327,085 | 347,489 | .94 |
| TOTAL | 6,830,964 | 5,620,281 | 1.22 | 9,210,190 | 8,252,914 | 1.12 |

Sources: Census data are from Tables A.16 and A.17. Taxation data are from *Taxation Statistics* published by Revenue Canada, Table 3.

Notes: ^a The taxation data on earnings and numbers of persons are adjusted to include only employment income and persons obtaining the major portion of their incomes from employment. See section C.1 for a discussion of the income sources included.

^b Ratio of census data to taxation data.

for those occupations which appear in both sources. This comparison is shown in Table 6. Comparisons could be made for only two census years - 1961 and 1971 - because self-employment income data were not available for earlier census years. Earnings data from the two sources are quite similar, more so for 1970 than for 1960-61. This was especially important because the taxation data were to be used for the post-1970 period. The key comparison between average annual earnings for the total labour force and total tax returns is particularly strong: they differ by only four per cent in 1960-61 and by two per cent in 1970. In the case of specific occupations, the difference exceeds five per cent only in the case of fishermen in 1970. Although there is less similarity in the data on number of persons, this is not as ¹important as the comparison of earnings data.

Earnings Data from the Consumer Finance Surveys

Statistics Canada has conducted surveys of household incomes since 1951, but prior to 1965, the surveys included only non-farm households. Since then, all private households have been included in the representative sample. The survey was conducted biennially until 1972, and annually since then. The occupational classification system is the same as that used in the census: until 1972, the

¹ The discrepancy is a short-fall on the taxation side and is due in part to low-wage earners who were classified in non-employment categories (pensioners, investors, etc.) in the taxation statistics.

1961 classification was used; in 1972 and subsequently, the 1971 classification has been adopted. As a result, the occupational earnings data for 1965-1971 are not comparable to those for 1972-1975. Moreover, the occupational data are not published separately for wage earners and for self-employed persons. Despite these shortcomings, the Consumer Finance Survey data are a useful complement to the census data, particularly for the 1972-1975 period, because the definitions and methodology are more appropriate to the purposes of this study than those of the taxation statistics.

CHAPTER III

Long-term Trends in the Occupational Structure of Earnings in Canada, 1931 to 1971

This chapter examines and attempts to account for long-term trends in the occupational structure of earnings in Canada, for broad groups and comparable detailed occupations. Data are presented on changes in an occupation's relative earnings,¹ and in its relative size in the labour force. The first section deals with overall developments for the period 1931 to 1961. This is followed by a detailed examination of changes in relative earnings for wage and salary workers in selected occupations from 1931 to 1971, and for self-employed earnings from 1961 to 1971. In the third section, a demand-supply model is used to explain the sources of the change, while the fourth section applies regression analysis.

Changes in Relative Earnings

Changes in Relative Earnings of Major Occupations, 1931-1961

The revised classification of occupations in the 1971 census not only significantly reduces the number of specific occupations which are comparable over time, but also prevents the

¹ The absolute figures for each series are included in Appendix A.

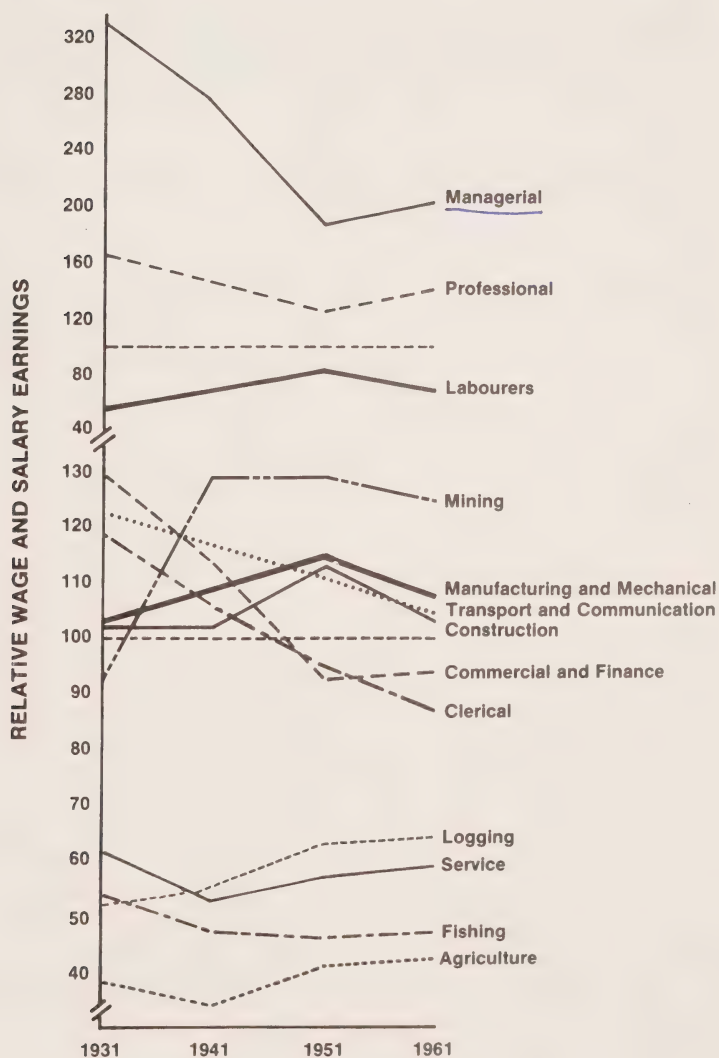
comparison of major occupational groups, pending a recording of the data.¹ The data for major occupational groups presented in this section cover only the period up to 1961. The titles of occupational groups are from the 1951 census and may cause some confusion. Manufacturing and mechanical occupations represent the skilled and semi-skilled workers found predominantly in the manufacturing industry. The construction trades are those identified with the construction industry, even though many of these trades, including electricians, carpenters, and so on, are employed outside that industry.²

It was observed in Chapter I that there was a general narrowing of differentials among occupations in Canada during the period 1931 to 1951. The basis for this observation can be seen in Chart 4. From 1931 to 1951, relative earnings decreased for white-collar occupations and increased for several lower-wage occupations, namely, manufacturing and mechanical, construction trades and labourers. From 1951 to 1961, the general pattern changed to a widening of occupational earnings differentials. Managerial and professional occupations increased relative to the overall average, while the three manual occupations just cited declined. Clerical occupations were above average in 1931 but below average by 1951, and continued to decline from 1951 to 1961.

¹The Statistics Canada recording project mentioned in Chapter II will provide data on major occupation groups as well as specific occupations.

²For a complete definition of these occupation groups see Meltz (1965), p.p. 13-15.

CHART 4
Trends in Relative Wage and Salary Earnings
by Major Occupation Groups, 1931-1961



Source: Table A.1

The main causes of the widening in differentials after 1951 were an increase in the demand for the higher-skilled white collar occupations, and a relative decline in demand for the manual occupations. In addition, relative earnings in clerical occupations continued to decline because of the rapid increase in the supply of females to perform clerical work. A fuller discussion of the factors underlying these changes is found in Meltz' (1965) study.¹

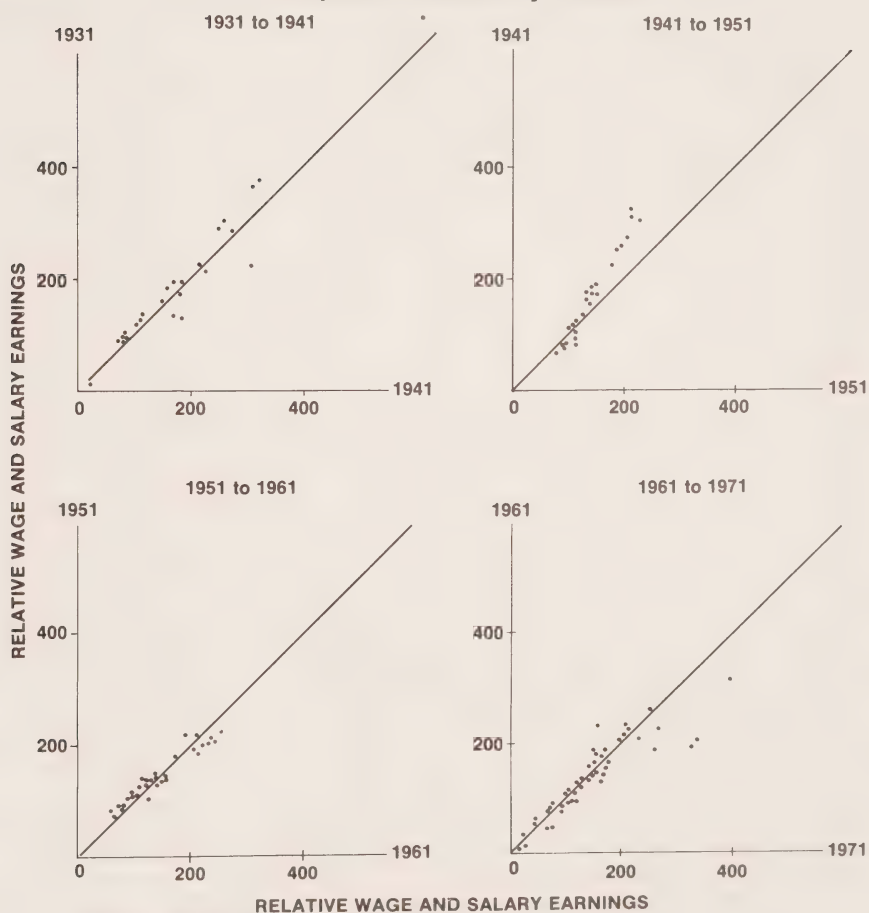
Changes in Relative Earnings in Selected Occupations, 1931 to 1971

The following discussion of relative earnings in the selected occupations will be related to the behaviour of relative earnings for the broad groups in which these occupations are located. The first set of comparisons examines the direction of change in the occupations on a decade-by-decade basis. Unless relative earnings in an occupation have changed by at least five per cent, it is considered that there has been "no change". On this basis, it will be seen in Table 7 that the number of occupations experiencing decreased earnings exceeded those with increases decade-by-decade until 1961. The same result occurs when the sample is limited to those occupations for which data are available back to 1931.

Chart 5 shows that the general reduction in relative earnings from 1941 to 1951 was much greater than a decade earlier, and was particularly large for occupations with the highest earnings. Note that in Chart 5 the dots representing the interdecade comparison of

¹ See particularly p.p. 43 and 61-66.

CHART 5
Relative Earnings in the Selected Occupations
Compared Decade by Decade



Source: Table 8

earnings rise with higher income significantly above the diagonal line for the 1941 to 1951 period. The increase in relative earnings from 1961 to 1971 was also greatest for the occupations with the highest earnings, although some occupations at the lowest levels also made sizeable gains, as shown by the distance below the diagonal line.

Of those occupations for which earnings data were available in both 1931 and 1971, Table 7 shows that most had lower relative earnings in 1971 than four decades earlier. In the shorter period from 1951 to 1971, however, as many occupations have increased as have decreased their earnings, with a similar number showing no change.

Professionals

The largest number of selected occupations are in the professional group. These occupations can be divided into five categories: engineering and science; health; legal; teaching; and other. With the exception of graduate nurses (1941-51), relative earnings in all of these occupations declined from 1931 to 1951,¹ as they did in the total professional group. Differences among the professional occupations emerge in subsequent decades, but in general, all the occupations in a sub-category follow the same pattern.

While relative earnings for the professional group as a whole rose between 1951 and 1961, the earnings of health occupations decreased. In the case of physicians and graduate nurses,

¹ See Table 8.

Interdecade Change in Relative Wage and Salary Earnings in Selected Occupations

| | <u>Number of Occupations</u> | | | |
|--|------------------------------|----------------|----------------|----------------|
| | <u>1931-41</u> | <u>1941-51</u> | <u>1951-61</u> | <u>1961-71</u> |
| All Selected Occupations | | | | |
| Increase in Relative Earnings | 3 | 6 | 10 | 23 |
| Decrease in Relative Earnings | 16 | 18 | 15 | 17 |
| No Change | 5 | 3 | 7 | 7 |
| | <u>24</u> | <u>27</u> | <u>32</u> | <u>47</u> |
| Occupations with data from 1931 ¹ | | | | |
| Increase in Relative Earnings | 3 | 5 | 6 | 12 |
| Decrease in Relative Earnings | 14 | 14 | 11 | 5 |
| No Change | 5 | 3 | 5 | 5 |
| | <u>22</u> | <u>22</u> | <u>22</u> | <u>22</u> |
| | <u>1931-71</u> | <u>1951-71</u> | | |
| Increase in Relative Earnings | 5 | 10 | | |
| Decrease in Relative Earnings | 15 | 10 | | |
| No Change | 3 | 11 | | |
| | <u>23</u> | <u>31</u> | | |

Source: Table 8 and Appendix Table A.7

Note: To represent an increase or a decrease, the interdecade change in relative earnings must be 5 per cent or more.

¹ Excludes judges, since comparisons are not possible for 1941-51 and 1951-61. In addition, for purposes of these comparisons, professors and teachers were taken as a combined group and not examined separately.

there was, at the same time, a substantial increase in their¹ numbers as a percentage of the labour force. In the teaching profession there were relative gains which exceeded those of any other selected occupation even though the proportion of the labour force represented by teachers increased by 35 per cent.

In the next decade (1961 to 1971), it was the health occupations (again with the exception of nurses) which had the largest relative increases. Relative earnings declined for electrical engineers and physicists, and rose very little for teachers and professors. One of the significant changes in this latter case was in the male-female ratio: the female proportion of the teachers and professors category fell from 68 to 59 per cent between 1961 and 1971. Since the number of teachers was increasing rapidly in this period, the decline in the female percentage resulted from the relatively greater increase in the number of male teachers associated with the rapid expansion² of secondary and post-secondary education.

Clerical

Relative earnings for the clerical group as a whole decreased steadily from 1931 to 1961. This same decline affected stenographers and typists over the four-decade period 1931 to 1971, although the relative earnings of this group did increase between 1941 to 1951 because of an increase in the relative earnings of male

¹ Appendix Table A.11.

² Appendix Tables A.12 and A.13.

Table 8

Average Annual Wage and Salary Earnings in Selected Occupations (Males and Females Combined) as a Percentage of Average Annual Earnings for all Occupations, Canada, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a | | | | | |
| (Actual Average) | 847 | 867 | 1,860 | 3,170 | 5,337 |
| (Percent of Total) | 100 | 100 | 100 | 100 | 100 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 80 | 97 |
| <u>Professional</u> | | | | | |
| Architects | 306 | 256 | 197 | 209 | 230 |
| Engineers | | | | | |
| Chemical | | | 211 | 240 | 202 |
| Civil | | | 202 | 224 | 211 |
| Electrical | 288 | 273 | 205 | 231 | 207 |
| Physicians & | | | | | |
| Surgeons | 365 | 310 | 215 | 207 | 338 |
| Dentists | 226 | 219 | 220 | 191 | 324 |
| Nurses, | | | | | |
| graduate | 108 | 81 | 93 | 88 | 92 |
| Optometrists | | | | 189 | 258 |
| Judges and | | | | | |
| Magistrates ^b | 662 | 618 | | 317 | 392 |
| Lawyers and | | | | | |
| Notaries | 379 | 321 | 211 | 228 | 264 |
| Physicists | | | | 232 | 211 |
| Biologists | | | | 178 | 155 |

TABLE 8 (cont'd)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| Economists | | | | 208 | 197 |
| Professors and Teachers | 132 | 117 | 106 | 133 | 138 |
| Professors | 292 | 251 | 186 | 215 | |
| Teachers | 126 | 111 | 101 | 127 | |
| Dieticians and Nutritionists | | | | 96 | 108 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers and Typists | 99 | 84 | 89 | 81 | 71 |
| <u>Commercial and Financial</u> | | | | | |
| Newsboys | | | | 16 | 17 |
| Service Station Attendants | | | 88 | 65 | 45 |
| Insurance Salesmen and Agents | | | | 162 | 151 |
| Salesmen, securities | | | | 182 | 169 |
| <u>Service</u> | | | | | |
| Personal Bartenders | | | | 82 | 74 |
| Barbers and Hairdressers | 90 | 70 | 77 | 64 | 56 |
| Protective and other Fire-fighting Occupations | 195 | 184 | 140 | 140 | 167 |

TABLE 8 (cont'd)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| Policemen and Detectives | 184 | 159 | 134 | 136 | 163 |
| <u>Transportation and Communication</u> | | | | | |
| Air Pilots, Navigators and Flight Engineers | 225 | 307 | 228 | 265 | 262 |
| Locomotive Engineers and Firemen | 214 | 223 | 179 | 175 | 166 |
| Deck Officers, ship | | | | 164 | 174 |
| Engineering Officers, ship | | | | 142 | 156 |
| Engine and Boiler-Room Crew, ship | | | | 97 | 102 |
| Bus Drivers | | 136 | 127 | 111 | 104 |
| Taxi Drivers and Chauffeurs | | 84 | 90 | 77 | 76 |
| Subway and Street Railway Oper- ators | 156 | 155 | 138 | 145 | 155 |
| Telegraph Operators | 172 | 174 | 140 | 125 | 127 |
| Mail Carriers | 132 | 115 | 112 | 103 | 103 |
| <u>Fishing, Hunt- ing, Trapping</u> | | | | | |
| Fishermen | | | | 48 | 62 |

TABLE 8 (cont'd)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|-------------|-------------|-------------|
| <u>Manufacturing and Mechanical</u> | | | | | |
| Flour and Grain Milling | 124 | 108 | 104 | 93 | 101 |
| Fish canning, curing and packing | | | | 35 | 33 |
| Metal Rolling | 126 | 186 | 148 | 153 | 145 |
| Tool and Die Making | 131 | 171 | 150 | 141 | 151 |
| Motor Vehicle Mechanics and Repairmen | | | 113 | 103 | 109 |
| Radio and T.V. Repairmen | | | | 106 | 106 |
| Typesetters and Compositors | | | 132 | 129 | 121 |
| Power Station Operators | | 175 | 142 | 152 | 172 |
| Motion Picture Projectionists | 194 | 170 | 140 | 119 | 121 |
| <u>Construction</u> | | | | | |
| Brick and Stone Masons and Concrete Finishing | 95 | 91 | 113 | 94 | 111 |
| Plasterers | 89 | 80 | 116 | 98 | 112 |
| Inspecting, Testing, etc. Construction, except Electrical | | 171 | 137 | 133 | 133 |

TABLE 8 (cont'd)

Sources: Noah M. Meltz, *Manpower in Canada, 1931-1961*, pp. 246-249. 1971 *Census of Canada*, Volume III - Part 6, No. 94-765, Table 15. See Appendix Table A.2 for actual earnings.

^a Excludes Armed Forces

^b Median earnings cannot be calculated for 1951.

clerical workers. Presumably, this resulted from the wartime economy with a generally increased demand for clerical workers and relatively few males available.

Commercial and Financial

The relative earnings of the commercial and financial group also declined over the long run, although there was no change between 1951 and 1961. Relative earnings declined in most of the comparable occupations within this group (particularly service station attendants).

Service

The service category consists of two distinct groups: personal service with relatively low earnings and protective service with above-average earnings. For the personal service group, relative earnings remained almost unchanged over the 1931 to 1961 period. In the case of barbers and hairdressers, however, relative earnings fell with the sharpest decline occurring from 1931 to 1941. Part of this drop was undoubtedly caused by a large relative increase in the case of female hairdressers in this decade, as well as between 1951 and 1971.¹

In the case of protective service, the selected occupations did not experience the decline in relative earnings that applied to the group as a whole. Both firemen and policemen had large relative increases between 1961 and 1971,

¹ Appendix Table A.13.

bringing them above the 1951 level and, in the case of policemen, above the 1941 level.¹

Transportation and Communication

The transportation and communication group as a whole experienced a continuous downward trend in relative earnings. The selected occupations tended to follow this pattern, with some notable exceptions, such as airline pilots and navigators who made a slight gain over the four decades. Only operators of street-cars and subways held constant their long-term relative incomes, while for railway-related occupations, mail carriers and bus drivers, relative earnings declined.

Manufacturing and Mechanical

The total manufacturing and mechanical group experienced a steady rise in relative earnings from 1931 to 1951, then lost about half of this increase in the 1950's. The selected occupations do not follow this pattern closely, but rather show quite diverse changes in their relative earnings. Flour and grain milling dropped steadily to 1961 and then increased slightly. Metal rolling and tool and die making gained sharply in 1931-1941, declined in the next decade, and have remained roughly stable since 1951. Power station operators show a U-shaped pattern from 1941 to 1971, while moving picture projectionists had a steady decline in relative earnings from 1931 to 1961, with little change since then.

¹Table 8.

Construction Trades

Relative earnings in construction trades remained unchanged except for a temporary increase in 1941-1951. Plasterers and masons experienced almost identical wide fluctuations in their relative earnings, but by 1971, these had almost returned to their 1951 peak. Construction inspectors did not fare as well: their relative earnings dropped in the 1941-51 decade and have since remained slightly below the 1951 level.

Summary of Changes in Relative Wage and Salary Earnings by Occupation

Though the occupational structure of earnings has narrowed between 1931 and 1971, there are diverse patterns within this general picture. First, relative earnings have increased in five of the 23 occupations traced back to 1931. Secondly, between 1951 and 1971 there were as many occupations with increases in relative earnings as there were with decreases. Thirdly, there appears to have been a recent tendency for relative earnings to increase in the higher-wage occupations and to fall in the lower-wage occupations. This observation is very tentative in view of the fact that this study could include so few occupations with below-average earnings. Finally, there were three prevalent patterns of change in relative earnings as illustrated in Chart 6 (i) large ups and downs; (ii) a long-term decrease in earnings, and (iii) a u-shaped decrease-then-increase.

The health professionals (with the exception of graduate nurses), legal professionals,

architects, professors and teachers, firemen, policemen, and street-car operators experienced the U-shaped pattern of decrease-then-recent-increase. Graduate nurses, air pilots, the metal rolling and tool and die making trades, and plasterers and lathers varied almost from decade to decade. There were also occupations whose relative earnings moved more-or-less steadily downward: electrical engineers, stenographers and typists, barbers and hair-dressers, locomotive engineers and firemen, telegraph operators, mail carriers, flour mill workers and movie projectionists.

Wage and Salary Versus Self-employment Income, 1961 to 1971

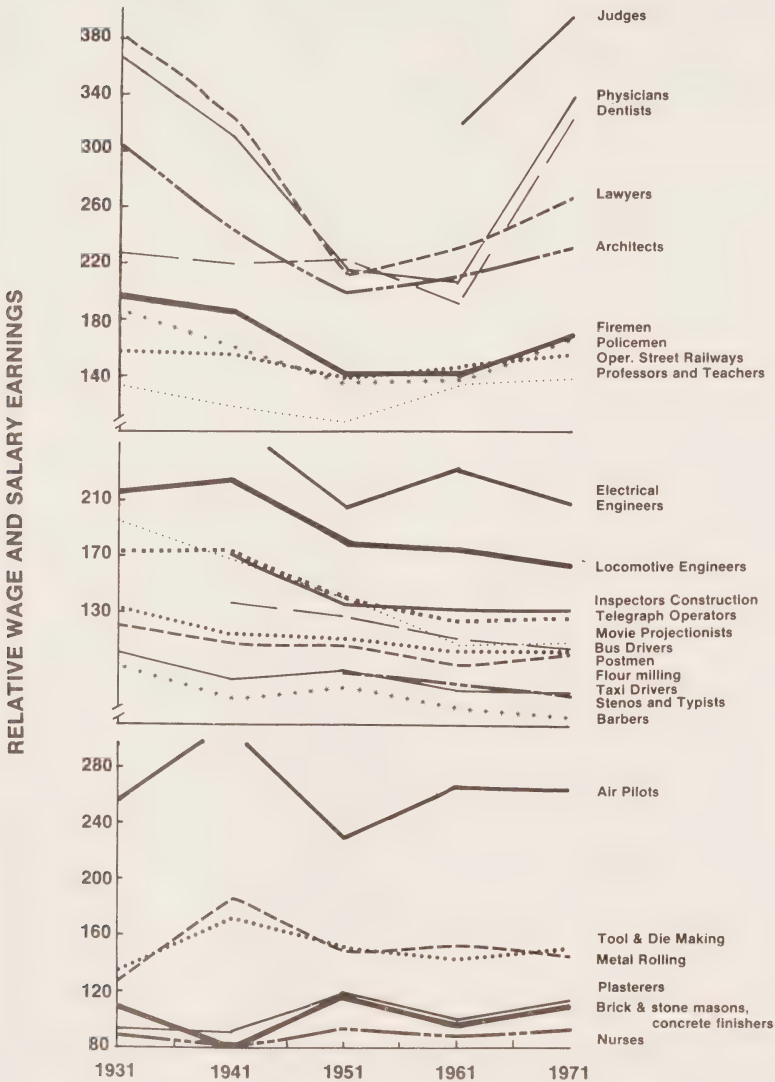
The preceding section has examined long-term trends in relative earnings using wage and salary data. This section compares changes since 1961 in the relative earnings of wage-earners with those of self-employed persons.

Persons with self-employment income are concentrated in a few occupational groups: proprietary and managerial, agriculture, fishing, and some occupations in the professional and service categories. The precise percentages of self-employed in the occupations where self-employment is common are shown in Table 9. There are not only differences in trends in relative earnings between self-employed and wage earners, but also among wage earners, depending on the income base that is used to calculate the trends.

Table 9 presents three sets of calculations. The first set shows the relative earnings in the selected occupations in 1961 and 1971, based on the average earnings of wage earners

CHART 6

Patterns of Change in Relative Wage and Salary Earnings in Selected Occupations 1931-71



Source: Table 6

Table 9

Self-employment Income and Wage and Salary Earnings as a Percentage of all Employment Income (Males and Females Combined) in Selected Occupations, Canada, 1961 and 1971

| | Wage and Salary Earners | | | | Self Employed Persons | | |
|-----------------------------|----------------------------------|-------------------|-------------------------------|-------------------|------------------------------------|-------------------------------|-------------------|
| | As % of Wage and Salary Earnings | | As % of all Employment Income | | As % of Labour Force in Occupation | As % of all Employment Income | |
| | 1961 ^a | 1971 ^a | 1961 ^b | 1971 ^b | 1971 | 1961 ^b | 1971 ^b |
| All Occupations actual (\$) | 3,170 | 5,337 | 3,597 ^c | 5,391 | | 3,597 ^c | 5,391 |
| per cent of total | 100 | 100 | 100 | 100 | | 100 | 100 |
| Architects | 209 | 230 | 184 | 228 | 38 | 349 | 323 |
| Physicians & Surgeons | 207 | 338 | 183 | 335 | 51 | 491 | 599 |
| Dentists | 191 | 324 | 169 | 320 | 75 | 365 | 418 |
| Optometrists | 189 | 258 | 167 | 255 | 71 | 262 | 327 |
| Lawyers and Notaries | 228 | 264 | 201 | 261 | 51 | 349 | 437 |
| Barbers, Hairdressers | 64 | 56 | 56 | 55 | 37 | 84 | 74 |
| Taxi Drivers & Chauffeurs | 77 | 76 | 68 | 75 | 26 | 89 | 87 |
| Fishermen | 48 | 62 | 42 | 61 | 54 | 53 | 64 |
| Motor Vehicle Mechanics | 103 | 109 | 91 | 108 | 10 | 108 | 105 |
| Radio & T.V. Servicemen | 106 | 106 | 93 | 105 | 29 | 97 | 92 |
| Brick & Stone Masons | 94 | 111 | 83 | 110 | 10 | 108 | 115 |
| Plasters & Lathers | 98 | 112 | 86 | 111 | 15 | 98 | 117 |

Sources: 1961 *Census of Canada*, Vol. IV, Part 4, No. 98-502.
1971 *Census of Canada*, Vol. III, Part 6, No. 94-765,
Table 14; and Vol. III, Part 2, No. 94-723, Table 8.

^a Excludes Armed Forces

^b Non-farm income only

^c Includes Armed Forces

only, as presented in Table A.2. The second and third sets of calculations are based on the average earnings of the total labour force.¹ The second set is a recalculation of relative income for wage and salary earners using total labour force employment income as the base. The third set shows self-employment income in relation to total employment income.

The first observation is that the change in base from wage and salary income to all employment income changes the direction of movement of relative income in a number of occupations between 1961 and 1971. This is because the overall average wage and salary income figure is much lower than the average for total employment income in 1961, whereas, in 1971, the figures are very similar. The 1961 figures in the first set are therefore higher than those in the second set.² Though barbers continue to show a decline in relative earnings, this is reduced to only one percentage point. Similarly, for occupations which had previously had an increase, the magnitude becomes greater.

The trends in relative earnings for the self-employed more closely resemble the data for wage and salary earners presented in Table 8 than the recalculation shown in the second set of figures in Table 9. While for self-employed earnings, although the magnitude of the changes from 1961 to 1971 differs from that

¹ This total employment income combines wage and salary income with self-employment income.

² Average wage and salary earnings: 1961: \$3,170; 1971: \$5,337 Average employment income: 1961: \$3,597; 1971: \$5,391.

of wage and salary earnings, the trends are generally in the same direction.

Since earnings data for self-employed persons by occupation were available for the first time in the 1961 census, the first inter-census comparison of changes in earnings for employees and self-employed persons by occupation covered the 1961-1971 period.

Table 10 ranks selected occupations according to the percentage of self-employed persons in the occupation. Columns four and five show the earnings for wage and salary earners as ratios of the self-employed earnings in each occupation for 1961 and 1971. The latter have higher earnings than the wage-earners in every case except for radio and T.V. repairmen and motor vehicle mechanics in 1971. In each case, however, the wage and salary earners have gained relatively more in the 1961-1971 period than have the self-employed, as shown by the figures in the last column of Table 10.

Of the selected occupations in which self-employment is prominent, salaried dentists made the largest gain relative to their self-employed counterparts. They were followed closely by salaried physicians and surgeons. Lawyers showed the lowest improvement in salaried earnings relative to self-employed earnings. Table 10 also shows that the universal improvement in employees' earnings relative to self-employed earnings arose through different conditions in each occupation. In most cases, both groups improved their relative earnings but those on salary showed larger increases. For example, the earnings of salaried optometrists rose by 53 per cent compared with 25 per cent for self-employed optometrists. Conversely, the wage-earners among barbers

Table 10
Earnings of Self-employed and Wage and Salary Earners for Selected Occupations, Male and Female Combined, Canada

| Occupation | Self-Employed as Percentage of Total Employed | Percentage Change in Relative Earnings 1961-1971 | | Ratio of Actual Earnings of Wage Earners to Self Employed | | |
|------------------------------|--|---|----------------|--|------|-------------|
| | | Wage Earners | Salary Earners | 1961 | 1971 | 1971 : 1961 |
| Dentists | 75 | +89 | +15 | .46 | .77 | 1.67 |
| Optometrists | 71 | +53 | +25 | .64 | .78 | 1.22 |
| Lawyers | 55 | +30 | +25 | .58 | .60 | 1.03 |
| Fishermen | 54 | +45 | +21 | .80 | .95 | 1.19 |
| Physicians & Surgeons | 51 | +83 | +22 | .37 | .56 | 1.51 |
| Architects | 38 | +24 | -7 | .53 | .71 | 1.34 |
| Barbers | 37 | -2 | -12 | .67 | .75 | 1.12 |
| Radio & T.V. Servicemen | 29 | +13 | -5 | .96 | 1.14 | 1.19 |
| Taxi Drivers & Chauffeurs | 26 | +10 | -2 | .76 | .86 | 1.13 |
| Plasterers & Lathers | 15 | +29 | +19 | .88 | .95 | 1.08 |
| Motor Vehicle Mechanics | 10 | +19 | -3 | .84 | 1.03 | 1.23 |
| Brick & Stone Masons | 10 | +33 | +6 | .77 | .95 | 1.23 |

Sources: Table 9, Columns 3, 4 and 5; and Appendix Tables A.2 and A.17

experienced a smaller decline in their relative earnings than their self-employed counterparts.

Various hypotheses might be offered to explain the general improvement in the earnings of the wage and salary earners relative to those of self-employed persons. The latter are often assumed to have higher earnings because they can work more hours per week. If so, the self-employed may be reaching an upper limit on the number of hours they are willing (or able) to work. It may also be that unionization (or employee organization in some form) had some impact on certain occupations in the 1960's.

Another possible factor is the impact of demand for workers in the occupation. If demand for an occupation were sufficiently strong in relation to supply, this could lead to a relatively greater increase in the earnings of wage and salary workers since in almost all cases they constitute the majority of workers in an occupation. The next section examines the factors responsible for the changes in relative earnings.

Application of the Demand-supply Model

The two preceding sections have discussed general trends in earnings differentials, as well as patterns for specific occupations. The next two sections deal with determinants of the observed trends in two ways. First, a simple supply-demand model is applied to the specific occupations to see whether any general explanations emerge for the three patterns of long-run change in relative earnings described in Chapter III. Secondly, regression analysis is used to assess the impact of selected demographic, geographic and industrial variables on the

observed earnings differentials. The intention initially was to narrow the focus to a few selected occupations. However, in view of the available data and the method of analysis used, it was judged preferable to include all of the occupations.

The first step in examining the sources of changes in relative earnings by occupation will be the application of the simplified demand-supply model to the census data.¹ This approach was developed by Meltz for the major occupation level² but the same general approach can be used for more specific occupations.

The model involves the use of data on changes in relative earnings and proportion of the labour force to identify the dominant factor responsible for the changes. It is assumed that employment and earnings are determined in a national market for each occupation and that the demand and supply curves for the occupations are normally shaped.

On the basis of these assumptions, the source of the changes can be identified between two points in time. Chart 7 displays a standard supply-demand diagram with an initial equilibrium, E_1 , in terms of wage rates and quantity of employment at OW_1 and OQ_1 . At the end of the time period, the new equilibrium, E_2 , is at wage rate OW_2 with OQ_2 employment. Although both supply and demand curves have changed, the

¹ While it would be possible to apply the model to the tax data as well, this is of dubious value because the number of persons reporting income differs from the number in the labour force, as was discussed in Chapter II.

² Meltz (1965).

CHART 7

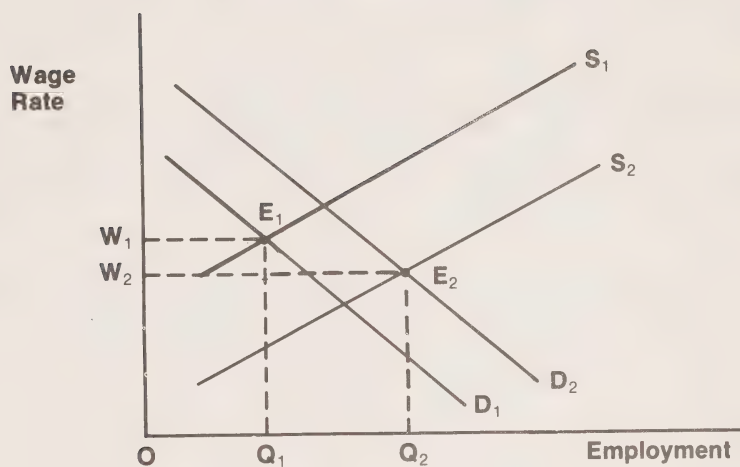
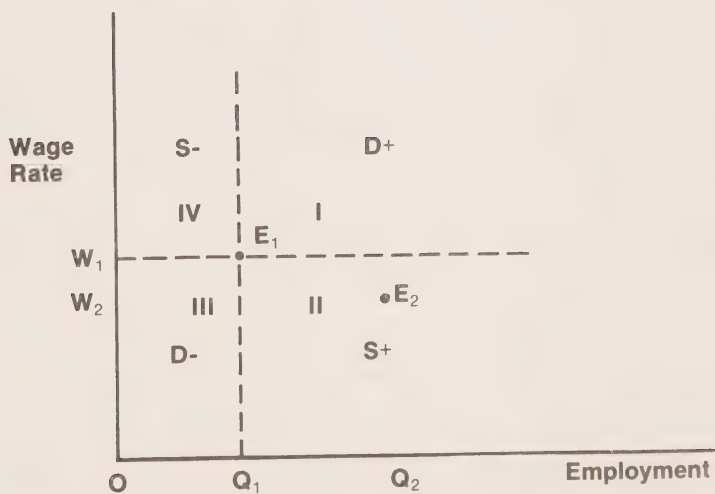


Chart 8



dominant factor is the increase in supply (measured by the horizontal shift to the right), since only a relatively greater increase in supply than in demand could produce a simultaneous drop in the wage rate and increase in employment.¹

Extending this approach to other combinations of supply and demand changes produces the combination of results shown in the four quadrants in Chart 8 with dominant factor and sign indicated.

Chart 8 presents the four cases in which either supply or demand is clearly dominant. Other cases in which each factor may have changed to the same extent, such that neither is clearly dominant, are represented by points along the boundary lines between the quadrants. For example, if there were no change in the wage rate but an increase in employment, the final position, E_2 , would lie horizontally to the right of E_1 on the boundary line between the quadrants labelled I and II. This case would be represented as $D+ = S+$. Because both earnings and numbers in the labour force have continually increased, and because comparisons are being made among occupations' relative earnings, percentages of the labour force are used instead of the absolute levels in each case.²

The location of the boundary lines depends on what one considers to be "no change" in supply

¹*Ibid.*, p. 35-39.

Ibid., p. 3-6 and p. 35-39.

or demand. In his study, Meltz used one percentage point as the minimum.¹ This study uses three alternatives, namely, changes of at least one, five, or 10 per cent, in order to provide some measure of the sensitivity of the results to alternative definitions. These alternatives progressively increase the size of the "no change" zone. For example, at the one per cent level, an increase in demand is the dominant factor behind the change in the relative earnings of architects between 1961 and 1971. This occurs because the occupations relative earnings increased by 10 per cent while its proportion of the labour force increased by two per cent. Using five per cent as the criterion, the increase in demand is offset by a decrease in supply. The same result applies at the 10 per cent level of change. In general, where either a supply or a demand change is dominant at the 10 per cent level, the relative change is clearly significant.

The results of applying the model on an inter-decade basis are shown in Table 11 for the occupations which are comparable over the four decades,² while the full details, including the results on the boundary lines, are contained in Appendix Table A.25. Table 11 will be discussed in terms of the three major trends which were observed in section A of this chapter.

The first pattern identified was that of occupations whose relative earnings decreased from

¹*Ibid.*

²Taxi drivers and chauffeurs are included even though the data began in 1941 because they were discussed in the preceding section.

Table 11

Dominant Factors Responsible for Interdecade Changes in Relative Earnings in Selected Occupations

| | 1931-41 | 1941-51 | 1951-61 | 1961-71 |
|--------------------------------------|---------|---------|---------|---------|
| LONG RUN PATTERN | | | | |
| <u>U-shaped</u> | | | | |
| Architects | **D- | **S+ | *D+ | D+ |
| Physicians & Surgeons | | S+ | S+ | S- |
| Lawyers & Notaries | **D- | **D- | *D+ | |
| Professors & Teachers | D- | D- | **D+ | D+ |
| Fire-Fighting Occupations | | **S+ | | *S- |
| Policemen & Detectives | **S+ | | D+ | *D+ |
| Subway & Street Railway Operators | D- | **D- | *S- | *S- |
| <u>Decreasing</u> | | | | |
| Electrical Engineers | *S+ | *S+ | **D+ | **S+ |
| Secretaries, Stenographers & Typists | **S+ | *D+ | *S+ | **S+ |
| Barbers & Hairdressers | *S+ | **S- | **S+ | |
| Locomotive Engineers & Firemen | S- | **S+ | D- | *D- |
| Bus Drivers | n/a | *S+ | | *S+ |
| Mail Carriers | *S+ | D- | *S+ | |
| Flour & Grain Milling | **S+ | D- | **D- | D+ |
| Motion Picture Projectionists | *S+ | | **D- | S- |
| <u>Fluctuating</u> | | | | |
| Dentists | D- | | D- | **S- |
| Nurses, Graduate | **S+ | *D+ | *D+ | *D+ |
| Air Pilots, Navigators | **D+ | **S+ | **D+ | S+ |
| Metal Rolling | **D+ | **S+ | D+ | D- |
| Brick & Stone Masons, Concrete | D- | **D+ | **S+ | **S- |
| Plasterers, & Lathers | **D- | **D+ | **D- | **S- |

Source: Appendix Tables A.7, A.15 and text.

Note: The "no change" level at which one factor becomes dominant is indicated as follows:

** 10 per cent

* 5 per cent

1 per cent

Blank cells indicate that there was no change either in relative earnings or in labour force (or possibly in neither) and hence that neither demand,nor supply dominated.

1931 to 1951 and then increased in the next two decades. The demand-supply model indicates a predominant demand decrease from 1931 to 1951, followed by a predominant increase in demand. A less significant factor was an increase in supply from 1931 to 1951, and a supply decrease over the next two decades.

Did the dominant factors simply reverse themselves? That is, where a decrease in demand was primarily responsible for the decrease in relative earnings from 1931 to 1951, did demand subsequently increase? Did the same reversal occur when an increase in labour supply resulted in a reduction of relative earnings from 1931 to 1951?

The answer to both questions is that a reversal took place in some occupations but not in others. This is shown in Table 11. For lawyers and for professors and teachers, a drop in demand was followed by an increase in demand as the dominant factor. In a similar way, increases in the supply of physicians and fire fighters were followed by a decrease in relative supply. However, for dentists, architects, policemen and operators of street railways, demand and supply changes alternated.

Two other comments should be made concerning the group of occupations which experienced a U-shape pattern of changes in relative earnings. First, this group consists mainly of professionals and protective service occupations. Secondly, all of the professional occupations exhibited this U-shape pattern, with the exception of electrical engineers who experienced a long-term decline in relative earnings and nurses whose earnings fluctuated. A decrease in supply occurred in some occupations with limitations on entry, for example, physicians and dentists. However, for others with similar

limitations, for example, lawyers and architects, a demand increase was dominant. It is thus important to examine occupations in greater detail to assess the factors behind changes in their relative earnings.

The second pattern was that of a long-term decline in relative earnings. For this group, a supply increase was the primary reason for the drop in relative earnings which occurred from 1931 to 1951, while the continuing decline in the period 1951 to 1971 resulted from a further increase in supply or a reduction in demand. Locomotive engineers and telegraph operators, for example, had a decrease in supply from 1931 to 1941, presumably from the impact of the war drawing men into the armed forces. Between 1951 and 1961, both experienced a drop in demand, possibly from the competition of other forms of transportation (airlines and buses) and other communications (telephone).

Occupations experiencing a long-term decline in relative earnings were largely transportation and communication occupations and stenographers and typists. Only two occupations from the former category were in other pattern groups.¹

A number of occupations had fluctuating relative earnings, particularly the skilled trades in manufacturing and mechanical and construction occupations. This group seemed to alternate between supply and demand increases until 1961, when the dominant factor became a decrease in relative supply. These occupations tend to have restrictions on supply through

¹ Street railway operators experienced a U-shaped pattern resulting from decreases in supply since 1951, while the relative earnings of air pilots fluctuated.

apprenticeship and hiring regulations. Although the earnings of nurses also fluctuated, alternating supply and demand increases were the responsible factors.

The preceding comments relate to the factors which were dominant over the various intercensal periods, regardless of the level at which change in relative demand or supply was defined as significant. If the observations are confined to the most significant, that is, at a change of 10 per cent or more, the same patterns emerge. No single factor is dominant throughout the 40 year period. Indeed, in many occupations there are shifts from dominant demand in one decade to dominant supply in the next. The general picture is one of various markets adjusting in accordance with the predictions of economic theory over the long run.

Regression Analysis

An alternative approach to analyzing the sources of change in relative earnings is through regression analysis.¹ Five possible sources of change in earnings differentials were considered: age, education, industry, region, sex. Unfortunately, because of the limited number of observations available, separate calculations could not be obtained for each occupation. Instead, the occupations are combined to examine the impact of the selected variables on earnings differentials. The analysis covers the period 1941 to 1971, as

¹ The calculations for this section and a draft discussion of the results were prepared by Mr. Vladimir Bajic.

data on education were not available in the 1931 census.

The section begins with a description of the selected variables and their rationale. Next, there is a statement of the model and the analytical techniques used. Finally, the empirical results and the conclusions are presented.

Explanatory Variables and the Hypothesis

Age was chosen as one of the explanatory variables because it is a proxy for years of working experience. The data were obtained by computing the mean age for each occupation. Since the age classes in the census tables did not change from census to census, and since each age class covered a short five-year time span, the weighted means computed can be regarded as satisfactory indicators of occupational age structure. The mean age across occupations is deflated by mean age for all occupations.

Education represents the acquisition of human capital which is expected to increase earnings. The mean number of years of schooling is used. Unfortunately, schooling categories varied among the censuses, and data for various post-secondary programs were not available. The mean number of years of schooling was deflated by the mean years of schooling for all occupations. Obviously the data neglect differences in quality of education.

Since earnings vary among industries, a change in the distribution of occupations by industry could account for changes in relative earnings. The industry variable used is the percentage of the labour force from each selected occupation in the government sector, since government

was one of the largest sectors represented in our sample. The deflator for this variable is the percentage of the total labour force in the government sector. The data for "government" are for the industrial category "public administration", which includes the three levels of government but excludes the public sector industries such as schools and hospitals.

Earnings also differ by region. Since Ontario is the region with the highest level of employment in Canada, we decided to use the percentage of each occupation's labour force in Ontario. The deflator for this variable is the percentage represented by Ontario in the total Canadian labour force.

To account for the fact that the determinants of relative earnings may differ for males and females, the data were separated by sex and analyzed separately throughout this part of the study.

One variable which could account for some change in relative earnings is the number of weeks worked per year. For example, an increase in the demand for an occupation could lead to a larger number of weeks worked, even at the same rate of pay, and hence increase average earnings in that occupation. If all occupations were not uniformly affected in this respect, a change in the number of weeks worked would change relative earnings among occupations. Unfortunately, weeks worked could not be included as an explanatory variable because each census used a different grouping of weeks worked.

For purposes of estimation, the ordinary least squares procedure was used. The hypothesis in linear form is:

$$\frac{Y_{it}}{Y_t} = \alpha + \beta_1 \frac{A_{it}}{A_t} + \beta_2 \frac{E_{it}}{E_t} + \beta_3 \frac{G_{it}}{G_t} + \beta_4 \frac{O_{it}}{O_t} + \epsilon$$

where:

Y_{it} = earnings and where subscript i refers to the selected occupation and subscript t to the census year

Y_t = average earnings for all occupations in year t

A_{it} = mean age by occupation and over time

A_t = mean age in year t for all occupations

E_{it} = mean years of education by occupation and over time

E_t = mean years of education in year t for all occupations

G_{it} = percentage of the labour force by occupation in year t employed by the government

G_t = percentage of the total labour force employed by the government

O_{it} = percentage of the labour force by occupation employed in Ontario in year t

O_t = percentage of the total labour force employed in Ontario in year t.

Since t refers to the years of four decennial censuses, 1941, 1951, 1961 and 1971, and since the hypothesis will be tested separately for males and females, cross-sectional equations need to be estimated. An adjustment had to be made for the fact that the number of selected occupations differed in each of the census

years. Only 28 occupations for the male labour force and 15 for the female labour force are included in the 1941 equations. For 1951, there are 33 occupations for males and 21 for females, while for 1961, there are 47 occupations for males and 34 for females. The 1961 occupation base was retained for 1971.

Because the sample size was increased in this way, separate estimations were required for each set of occupations. All four equations (using data for 1941, 1951, 1961, and 1971) were first estimated using the 1941 occupational basis. The last three equations (1951, 1961, and 1971) were then estimated using the 1951 set of occupations and finally, equations for 1961 and 1971 were estimated using the 1961 occupational base. The occupations included in each case are listed in Appendix C along with the data on the variables.

Two approaches are taken in the analysis. First, the determinants of relative earnings are compared over time and by sex. Both coefficients of the variables and elasticity measures are calculated. Secondly, the data are tested (for males and females separately) for structural homogeneity over the two time periods 1941 to 1971 and 1961 to 1971.¹ Since in the cross-section analysis there is a possibility of hetero-scedasticity, the model was defined in such a way that all the variables were scaled.

¹For a detailed discussion of this method see Johnston (1971), Chapter Two, or Kmenta (1971), Chapter 10.

Comparison of the Determinants of Relative Earnings

The set of equations in Table 12 presents the regression results for males and females separately for 1941 through 1971. There are 28 observations for males and 15 for females.

Males

The coefficients of determination are quite high for cross-sectional analysis and all regressions are significant at the one per cent level for males. However, the basic hypothesis is only partially confirmed. Estimates of the regression coefficients for the variables "government" and "Ontario" are all insignificant at the conventional significance levels. The magnitudes of the estimated coefficients are also low. The results indicate that neither variable is an important determinant of the differentials in relative earnings. This conclusion holds for each of the years 1941 to 1971.

As one would expect, the coefficients associated with "age" are positive, though they show considerable variation over time. Estimates for 1941, 1951, and 1971 are highly significant, while the estimate for 1961 is barely significant at the 10 per cent level, and only under the hypothesis of a direct relationship between relative age and relative earnings (using the one-tail t-test). In all four equations age appears to be an important variable in explaining the changes in relative earnings. Education is the most important variable in explaining relative earnings differentials. All estimates

Table 12
Regression Results for Selected Occupations, by Sex
Canada, 1941-1971

| Year | Constant Term | Age β_1 | Education β_2 | Government β_3 | Ontario β_4 | R^2 | \bar{R}^2 | D.W. | SSR |
|---------------------------------|------------------|--------------------|------------------------|-------------------------|----------------------|-------|-------------|------|------|
| <u>Males</u> (28 occupations) | | | | | | | | | |
| 1941 | -3.384 | 2.334*** (2.95) | 1.600*** (4.26) | .018 (1.28) | .452 (.96) | .596 | .545 | 1.58 | 9.85 |
| 1951 | -1.219 | .901*** (2.51) | 1.139*** (6.05) | .009 (1.25) | .190 (1.31) | .721 | .686 | 1.80 | 1.68 |
| 1961 | -.892 | .666* (1.35) | 1.147*** (7.11) | .012 (.94) | .107 (.63) | .719 | .684 | 2.07 | 2.16 |
| 1971 | -2.564 | 2.112*** (4.40) | 1.494*** (9.17) | 1.008 (.57) | .016 (.09) | .835 | .814 | 1.90 | 2.14 |
| <u>Females</u> (15 occupations) | | | | | | | | | |
| 1941 | -3.091 | 2.580** (2.26) | 2.244** (2.27) | -.037 (-.67) | -.652 (-1.59) | .720 | .644 | 1.97 | 2.51 |
| 1951 | 2.212 | -.832 (-.97) | 2.238*** (5.71) | .085* (2.02) | -.266 (-1.49) | .795 | .740 | 1.66 | .69 |
| 1961 | -1.199 | .607 (.89) | 1.742*** (5.44) | .056 (.90) | -.243 (-.67) | .818 | .768 | 2.03 | .99 |
| 1971 | -2.049 | 1.704* (1.86) | 2.353*** (7.45) | .016 (.34) | -.335 (-.99) | .882 | .850 | 1.59 | 1.20 |

***, **, * denote significance at 1, 5, and 10 per cent levels throughout this chapter

t-values are in parentheses beneath the regression coefficients

SSR is sum of squared residuals

of the coefficients are positive and highly significant for all four equations.

To compare changes in coefficients over time and among variables, elasticities of relative earnings differentials with respect to explanatory variables were estimated at the means. The results obtained are shown in Table 13.

Not only are the coefficients insignificant for government and for Ontario, but the relative earnings across occupations are also highly inelastic with respect to the percentages of occupational labour force accounted for by these variables. The elasticity coefficient for relative age is more important. The estimates obtained for 1951 and 1961 are inelastic, but their magnitudes show that the proportionate change in relative earnings related to changes in age is important. On the other hand, in 1941 and 1971, the elasticity coefficient for age is elastic, and shows that earnings change with age proportionately more than with any other explanatory variable, including education.

The education elasticity of relative earnings shows very little variation across time. In each census year education is elastic, and in 1951 and 1961, it is the most important determinant of changes in relative earnings. One explanation for this is that for the observed occupations in 1951 and 1961, increases in earnings were more sensitive to changes in the educational level of the labour force than to changes in work experience.

Table 13
Elasticities of Relative Earnings Differentials
for Selected Occupations, by Sex, Canada, 1941-1971

| <u>Year</u> | <u>Age</u> | <u>Education</u> | <u>Government</u> | <u>Ontario</u> |
|--------------------------|------------|------------------|-------------------|----------------|
| Males (28 occupations) | | | | |
| 1941 | 1.24 | 1.14 | .05 | .09 |
| 1951 | .67 | 1.03 | .03 | .16 |
| 1961 | .50 | 1.05 | .02 | .08 |
| 1971 | 1.53 | 1.23 | .03 | .02 |
| Females (15 occupations) | | | | |
| 1941 | 1.67 | 1.50 | -.05 | -.43 |
| 1951 | -.63 | 1.88 | .10 | -.21 |
| 1961 | .43 | 1.46 | .06 | .16 |
| 1971 | 1.00 | 1.67 | .02 | -.17 |

Females

The regression results for females based on the occupations for which data were available in 1941 are also presented in Table 12. As in the case of males, the results for females only partially confirm the basic hypothesis. All coefficients of determination are quite high and the regression equations are highly significant. Estimates of the coefficients associated with government and Ontario are generally insignificant at the conventional significance levels. Some caution must be exercised in interpreting these results however, because of the relatively small sample size in relation to the number of explanatory variables.

The coefficient for age is significant for 1941 and 1971 and shows considerable variation over time. The education coefficients show little variability and are highly significant (with the exception of the estimate for 1941 which is barely significant at the five per cent level). All coefficients associated with education are positive, while the 1951 age coefficient is negative.

The pattern of elasticities for females shown in Table 13 is similar to that of males, except that the figures for education are consistently higher than for males. The higher elasticity in the case of females may be due to the concentration of females in professional and clerical occupations where education is a more important factor in explaining earnings than in blue collar or service occupations. (The elasticity for age is negative in 1951, but as just noted, the coefficient is not significant.) Education is the most important variable in explaining changes in relative earnings

for the observed occupations in the female labour force.

The foregoing calculations were repeated using the enlarged occupation bases of 1951 and 1961.¹ For males, the results remain virtually the same with the age and education variables positive and highly significant, and the government and Ontario variables positive (with one exception) and insignificant. For females, age and education are also the only significant variables, with the exception of Ontario on the 1961 occupational basis. The only difficulty with the female regressions arises in 1951 (on the 1951 basis) when the age coefficient becomes negative and significant at the 10 per cent level. A possible explanation for this result is that the additional occupations in 1951 were particularly sensitive to the efflux of women from the labour force after World War II, with the most experienced women leaving the labour force.

Examination of Structural Changes

Changes in the significance of the variables over time are analyzed next to determine whether there have been structural changes in the market forces for the selected occupations. Since the equations estimated with the 1951 occupation base gave similar results to those with the 1941 base, particularly for males, changes in the coefficients over time are examined using the 1941 and 1961 bases. The analysis will show whether there was a

¹ The regression results and elasticity coefficients are available on request from the authors.

significant structural change, that is, whether there was a change in the relative importance of the explanatory variables over time. There is a possibility that the error terms of the separate equations are correlated with each other which would slightly reduce the efficiency of the estimates. Even if this occurred it would not affect the validity of the results because the purpose of the pooled equations is to show that the occupations belong to the same labour market.

Males

All four equations for males using the 1941 base were pooled to test for overall homogeneity. The following regression equation was obtained:

$$\frac{Y_{it}}{Y_t} = -2.01 + 1.568^{***} \frac{A_{it}}{A_t} + 1.323^{***} \frac{E_{it}}{E_t} + .015^{***} \frac{G_{it}}{G_t} + .152 \frac{O_{it}}{O_t}$$

(5.45) (11.06) (2.50) (1.27)

$$R^2 = .640 \quad \bar{R}^2 = .630$$

$$SSR = 19.01 \quad D.W = 1.64$$

The Chow-Test for four equations of equal size gave the F value ($F_{15,92}$) of 1.23 which is insignificant at all significance levels. The hypothesis of homogeneity among all four equations for the male labour force is accepted. The pooled regression also indicated that the hypothesis was strengthened by this aggregation. The coefficients for age and education were significantly different from zero at the one per cent level. The coefficient for government was significant, while that for Ontario was not.

While these results confirm that there are no significant changes in the coefficients and, therefore, in the relative importance of the determinants of relative earnings over time, this result is only marginally valid. Removal of the regional variable leads to the rejection of the null hypothesis at the five per cent level. By introducing (n-1) time period dummies (taking the value of 1 for the year in question and 0 for all others), change in the intercept over time between equations is provided for, while pooling the equations constrains slopes to be equal among equations. The analysis of covariance test for homogeneity of slopes rejects the null hypothesis about the homogeneity of slopes at the five per cent level.

To determine which slopes and intercepts were different over time, three interactive dummy variables were introduced for each independent variable to allow for the changes in slopes, yielding the following equation to be estimated (the Ontario variable has been removed):

$$\frac{Y_{it}}{Y_t} = \alpha + \beta_1 \frac{A_{it}}{A_t} + \beta_2 \frac{E_{it}}{E_t} + \beta_3 \frac{G_{it}}{G_t} + \sum_{j=1}^3 \gamma_j D_j + \sum_{j=1}^3 a_j \left(\frac{A_{it}}{A_t} \times D_j \right) + \sum_{j=1}^3 b_j \left(\frac{E_{it}}{E_t} \times D_j \right) + \sum_{j=1}^3 c_j \left(\frac{G_{it}}{G_t} \times D_j \right) + e$$

where $D_j = 1$ for the equation in question and 0 for all others. With the 1971 equation as the control equation, the results obtained are shown in Table 14.

Table 14
Regression Results for Pooled Equations

| Male (1941 basis) | | | Females (1961 basis) | | |
|--|-----------------------|-------------|--|-----------------------|-------------|
| Variable | Equation (3) | t-statistic | Variable | Equation (8) | t-statistic |
| | Estimated Coefficient | | | Estimated Coefficient | |
| Constant | -2.612 | - | Constant | -3.216 | |
| $\frac{A_{it}}{A_t}$ | 2.188*** | 3.25 | $\frac{A_{it}}{A_t}$ | 2.289*** | 3.65 |
| $\frac{E_{it}}{E_t}$ | 1.494*** | 6.14 | $\frac{E_{it}}{E_t}$ | 2.079*** | 10.09 |
| $\frac{G_{it}}{G_t}$ | .008 | .57 | $\frac{G_{it}}{G_t}$ | .013 | .35 |
| D | 2.326*** | 2.33 | $\frac{O_{it}}{O_t}$ | .0027 | .012 |
| D | 1.692* | 1.72 | D_j | 2.247** | 2.59 |
| D | 1.866* | 1.73 | $(\frac{A_{it}}{A_t} \times D_j)$ | -1.978** | -2.43 |
| $(\frac{A_{it}}{A_t} \times D_1)$ | -2.252*** | -2.58 | $(\frac{E_{it}}{E_t} \times D_j)$ | -.629 | -2.26 |
| $(\frac{A_{it}}{A_t} \times D_2)$ | -1.325 | -1.45 | $(\frac{G_{it}}{G_t} \times D_j)$ | -.008 | -.16 |
| $(\frac{A_{it}}{A_t} \times D_3)$ | -1.528 | -1.52 | $(\frac{O_{it}}{O_t} \times D_j)$ | .280 | 1.36 |
| $(\frac{E_{it}}{E_t} \times D_1)$ | .192 | .54 | $R^2 = 0.782$ $R^2 = 0.752$ D.W. = 1.84 | | |
| $(\frac{E_{it}}{E_t} \times D_2)$ | -.385 | -.96 | | | |
| $(\frac{E_{it}}{E_t} \times D_3)$ | -.370 | -1.09 | | | |
| $(\frac{G_{it}}{G_t} \times D_1)$ | -.0219** | -2.12 | | | |
| $(\frac{G_{it}}{G_t} \times D_2)$ | .001 | .56 | | | |
| $(\frac{G_{it}}{G_t} \times D_3)$ | .004 | .55 | | | |
| $R^2 = 0.699$ $R^2 = 0.642$ D.W. = 1.73 | | | | | |

Performing t-tests with one restriction on two coefficients, or ordinary t-tests for comparison with the control equation, showed that the structural change did not occur because of significant changes in education. A significant difference is obtained only between the 1941 and 1971 equations which involve changes in the intercepts and the government coefficient.

Although the government coefficient was insignificant, the 1941 estimate was significantly different from the estimates for the latter years, showing the decreasing importance of the government sector in explaining changes in relative earnings. In spite of this movement, the explanatory power of the government variable was still negligible by comparison to the significant variables age and education. One can thus conclude that there are no significant changes in the structure of equations for males comparing 1941 and 1971.

Females

In the examination of changes in relative earnings determinants over time for the female labour force, pooling the cross-sectional data over time for 15 selected occupations again strengthened the tested hypothesis:

$$\frac{Y_{it}}{Y_t} = -1.958 + \frac{1.332***}{(3.17)} \frac{A_{it}}{A_t} + \frac{1.997***}{(9.05)} \frac{E_{it}}{E_t} + \frac{0.013}{(.56)} \frac{G_{it}}{G_t} + \frac{-3.51***}{(-2.57)} \frac{O_{it}}{O_t}$$

$$R^2 = 0.694 \quad \bar{R}^2 = 0.677$$

$$SSR = 8.967 \quad D.W = 1.53$$

Age and education were highly significant as expected. The regional variable, which was insignificant in individual equations, became significant over the whole observed period. The Chow test just missed being significant at five per cent, indicating the absence of an overall structural change between equations over time.

The second time period for which the analysis of structural change was conducted covers 1961 to 1971. Pooling the equations for the male labour force in 47 occupations gave the following results:

$$\frac{Y_{it}}{Y_t} = -.160 + 1.409*** \frac{A_{it}}{A_t} + 1.083*** \frac{E_{it}}{E_t} + .015 \frac{G_{it}}{G_t} + .117 \frac{O_{it}}{O_t}$$

(5.62) (11.07) (1.58) (1.53)

$$R^2 = 0.6813 \quad \bar{R}^2 = 0.670$$

$$SSR = 10.58 \quad D.W = 2.05$$

Again, the regression results show that the hypothesis was strengthened by aggregation. While both age and education were highly significant, coefficients of the government and regional variables were only barely insignificant. A Chow test on the two equations confirmed their homogeneity and hence the fact that there were no significant changes in the relative explanatory power of the independent variables between 1961 and 1971. When the observations were pooled for the female labour force in 34 occupations, the Chow test rejected overall homogeneity at the one per cent level, indicating a structural change between the equations for 1961 and 1971. The estimated pooled regression is as follows:

$$\frac{Y_{it}}{Y_t} = -1.471 + .837 \frac{A_{it}}{A_t} + 1.705*** \frac{E_{it}}{E_t} + .041 \frac{G_{it}}{G_t} + .008 \frac{O_{it}}{O_t}$$

(1.92) (11.13) (1.41) (.08)

$$R^2 = 0.7020 \quad \bar{R}^2 = 0.688$$

$$SSR = 9.78 \quad D.W = 1.42$$

The aggregation strengthened the influence of the government variable, which just missed being significant, but the regional variable remained quite insignificant.

To determine whether the structural change between the equations was in the slopes or intercepts, all slopes were constrained to be equal and the intercepts were permitted to adjust for any change between 1961 and 1971, yielding the following regression equation:

$$\frac{Y_{it}}{Y_t} = -1.602 + 1.009** \frac{A_{it}}{A_t} + 1.721*** \frac{E_{it}}{E_t} + 0.309 \frac{G_{it}}{G_t} + .201 \frac{O_{it}}{O_t} - .201* D_i$$

(2.33) (11.50) (1.08) (.54) (-2.05)

$$R^2 = .7209 \quad \bar{R}^2 = 0.703$$

$$SSR = 9.15 \quad D.W = 1.49$$

The analysis of covariance F-test for homogeneity of slopes gave an F-value ($F_{4,58}$) of 4.04, which is significant at the one per cent level. This result leads to the conclusion that the importance of the determinants has changed significantly over the observed period. To determine the particular coefficients which had changed, slopes as well as intercepts were allowed to vary over the equations. The equation to be estimated is:

$$\frac{Y_{it}}{Y_t} = \alpha + \beta_1 \frac{A_{it}}{A_t} + \beta_2 \frac{E_{it}}{E_t} + \beta_3 \frac{G_{it}}{G_t} + \beta_4 \frac{O_{it}}{O_t} + \gamma D_j +$$

$$s_1 \cdot \frac{(A_{it} \cdot D_j)}{A_t} + s_2 \frac{(E_{it} \cdot D_j)}{E_t} + s_3 \frac{(G_{it} \cdot D_j)}{G_t} + s_4 \frac{(O_{it} \cdot D_j)}{O_t}$$

where D_j takes the value of 1 when the observation belongs to the experimental equation. S_1 are coefficients associated with the interactive dummy variables.

With the 1971 equation as the control equation, the regression results shown in Table 14 indicated that the coefficients for both age and education were significantly different in the two observed equations.

Estimated values for S_1 and S_2 were both negative, and both coefficients were significantly different from zero. On the margin for females, an increment in work experience and in human capital had significantly greater impact on the interoccupational relative earnings differentials in 1971 than in 1961.

The general conclusion of this analysis is that for males, there were no structural changes over time in the relative impact of age and education. In the case of females, however, the larger number of occupations available on the 1961 base indicates that age and education had a significantly greater impact on earnings differentials in 1971 than in 1961, possibly as a result of the substantial increase in female labour force participation rates during this period.

CHAPTER IV

Recent Changes in the Occupational Structure of Earnings in Canada, 1970 to 1975

Taxation Data on Relative Earnings

Changes in the relative earnings of the self-employed and employees during the 1960's were presented in the previous chapter. These patterns can now be extended to 1975 using data from taxation returns and the Consumer Finance survey.¹

Census data showed that self-employed physicians and surgeons, lawyers, and dentists experienced an increase of 15 to 25 per cent in their relative earnings during the 1961-71 period. As shown in Table 15, tax data yield similar results in terms of direction and approximate magnitudes of change. From 1970 to 1975, dentists and accountants were the only self-employed professionals among the occupations included to increase their relative earnings, while doctors' and surgeons' relative earnings fell by almost 25 per cent. In fact, the broader picture presented in Table 15 suggests that a change in the direction of relative earnings for self-employed professionals occurred in the early 1970's. Most professional occupations saw their relative earnings

¹ See Chapter II for a description of the data from these two sources.

increase substantially from 1950 to 1970, then level off or decline.¹

Farmers had a sharp increase in their relative earnings in 1970-1975, while fishermen encountered a major decline, following two decades of falling relative earnings for both groups.

In 1970-75, the relative earnings of self-employed salesmen and business proprietors continued the declining trend of the 1950's and 1960's.

Employees generally display a pattern of either no change or a decline in relative earnings from 1970 to 1975. This follows two decades of differing experiences among the various employee groups: teachers and professors had increased their average earnings by over 40 per cent, federal and provincial government employees by over 20 per cent, and municipal government and institutional employees by 8 to 10 per cent. Over the long period of two decades, however, the composition of these groups changed substantially. Teachers and professors, for example, had a high proportion of elementary school teachers in 1950/51, an increasing proportion of secondary school teachers by 1960/61 and a substantial proportion of professors by 1970. Hence, the increase in relative earnings for this group reflects a change in occupational composition as well as an improvement on what were unusually low relative earnings in 1950/51. To

¹The decline in relative earnings for total professionals in 1970-1975 is due largely to the decline in relative earnings for doctors, whose earnings together with "other professionals" dominate the total professionals.

Table 15

Average Annual Earnings^a in Selected Occupations as Percentage of Average Annual Earnings for all Occupations, Males and Females Combined, Canada, 1950/51 to 1975

| | Relative Earnings | | | | Percentage Change in Relative Earnings | | | |
|---------------------------------------|-------------------|-------|-------|-------|---|------------|------------|------------|
| | 1950- | 1960- | 1970 | 1975 | 1950-51 | 1960-61 | 1970 | 1960 |
| | 1951 | 1961 | | | to 1960-61 | to 1970 | to 1975 | to 1975 |
| Self-Employed | | | | | | | | |
| Doctors and Surgeons | 353 | 442 | 609 | 465 | 24 | 38 | -24 | 5 |
| Lawyers and Notaries | 335 | 376 | 445 | 384 | 12 | 18 | -14 | 2 |
| Dentists | 221 | 326 | 391 | 409 | 48 | 20 | 5 | 25 |
| Engineers and Architects ^b | 380 | 364 | 355 | 331 | -4 | -2 | 7 | -9 |
| Accountants ^b | 288 | 292 | 312 | 330 | 1 | 7 | 6 | 13 |
| Entertainers and Artists ^c | 114 | 138 | 92 | 54 | 21 | -33 | -41 | -61 |
| Other Professionals ^d | 98 | 130 | 135 | 123 | 33 | 4 | -9 | -5 |
| Total Professionals | 248 | 305 | 354 | 294 | 23 | 16 | -17 | -4 |
| Farmers | 72 | 63 | 41 | 93 | -12 | -35 | 127 | 48 |
| Fishermen | 111 | 74 | 71 | 48 | -33 | -4 | -32 | -35 |
| Salesmen | 152 | 137 | 102 | 95 | -10 | -26 | -7 | -31 |
| Business Proprietors | 129 | 103 | 87 | 75 | -20 | -16 | -14 | -27 |
| Employees | | | | | | | | |
| Teachers and Professors ^e | 99 | 117 | 140 | 136 | 18 | 20 | -3 | 16 |
| Federal Government | 101 | 109 | 123 | 118 | 8 | 13 | -4 | 8 |
| Provincial Governments | 94 | 101 | 114 | 114 | 7 | 13 | 0 | 13 |
| Municipal Governments | 104 | 109 | 112 | 106 | 5 | 3 | -5 | -3 |
| Business Enterprises | 97 | 99 | 99 | 97 | 2 | 0 | -2 | -2 |
| Institutions ^f | 72 | 70 | 81 | 83 | 3 | 16 | 2 | 19 |
| Total ^g | 100 | 100 | 100 | 100 | | | | |
| Average Annual Earnings (\$) | | | | | | | | |
| | 2,380 | 3,474 | 5,529 | 9,299 | | | | |

Source: Table A.18, based on Revenue Canada, *Taxation Statistics*, annual.

- ^a See Chapter II for a discussion of the income sources included for each occupation.
- ^b Accountants included in "Other Professionals" prior to 1951.
- ^c Artists added after 1950/51.
- ^d Includes osteopaths, chiropractors, nurses which were reported separately in 1950/51, as well as veterinarians, surveyors, and tax and investment consultants.
- ^e Reported as "employees of educational institutions" in 1950/51.
- ^f Institutions include hospitals, schools and college (non-teaching staff), other non-profit institutions not directly part of government service.
- ^g Excludes persons whose major income source was other than employment (i.e., investments, pensions, unclassified), but non-taxable returns are included for each occupation.

a lesser extent, compositional change also occurred in the government employee groups.

A comparison of relative earnings in 1960 and 1975 shows that by 1975, doctors and lawyers had returned almost to their 1960 relative earnings position. Dentists and accountants had gained substantially, while the other professionals had fallen slightly below their 1960 levels. During this period, entertainers' and artists' relative earnings fell by over 60 per cent, farmers improved their relative position by nearly 50 per cent, and fishermen, salesmen, and business proprietors had about a 30 per cent drop in their relative earnings.

In order to determine whether the changes in relative earnings observed for 1970 to 1975 represented a steady movement in the direction indicated or were the net result of year-to-year fluctuations, the yearly percentage changes were calculated and are presented in Table 16.

These annual data show that the decline in doctors' relative earnings has continued steadily since 1971, while those of dentists have shown only minor changes each year. Lawyers, engineers, and accountants had a strong upswing in 1973, but while the first two groups dropped sharply in 1975, the accountants gained very slightly. In general, the relative earnings of self-employed professionals have declined since 1973.

There was a steady increase in the relative earnings of farmers, salesmen, and business proprietors until 1975 when their earnings weakened, although only slightly in the case of farmers. The general pattern for employees was a decline in 1971 and 1972, particularly for federal and municipal government employees followed by stability in 1973 and 1974. In

Table 16
Average Annual Earnings^a in Selected Occupations as a Percentage of
Average Annual Earnings for all Occupations (Males and Females
Combined), Canada, 1970 to 1975

| | Relative Earnings | | | | | | Annual Percentage Change in Relative Earnings | | | | |
|------------------------------|-------------------|-------|-------|-------|-------|-------|---|---------------|---------------|---------------|---------------|
| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1970- 1971 | 1971- 1972 | 1972- 1973 | 1973- 1974 | 1974- 1975 |
| Self-Employed | | | | | | | | | | | |
| Doctors and Surgeons | 609 | 651 | 589 | 560 | 508 | 465 | 7 | -10 | -5 | -9 | -8 |
| Lawyers and Notaries | 445 | 429 | 419 | 459 | 456 | 384 | -4 | -2 | 10 | -1 | -16 |
| Dentists | 391 | 403 | 403 | 404 | 396 | 409 | 3 | 0 | 0 | -2 | 3 |
| Engineers and Architects | 355 | 322 | 330 | 418 | 370 | 331 | -9 | 9 | 27 | -11 | -11 |
| Accountants | 312 | 286 | 268 | 333 | 328 | 330 | -8 | -6 | 24 | -2 | 1 |
| Entertainers and Artists | 92 | 73 | 70 | 77 | 71 | 54 | -21 | -4 | 10 | -8 | -24 |
| Other Professionals | 135 | 141 | 147 | 137 | 137 | 123 | 4 | 4 | -7 | 0 | -10 |
| Total Professionals | 354 | 357 | 339 | 337 | 318 | 294 | 1 | -5 | -1 | -6 | -8 |
| Farmers | 41 | 46 | 57 | 82 | 95 | 93 | 12 | 24 | 44 | 16 | -2 |
| Fishermen | 71 | 65 | 66 | 76 | 61 | 48 | -8 | 1 | 15 | -20 | -21 |
| Salesmen | 102 | 109 | 115 | 114 | 120 | 95 | 6 | 6 | -1 | 5 | -21 |
| Business Proprietors | 87 | 86 | 86 | 91 | 92 | 75 | -1 | 0 | 6 | 1 | -18 |
| Employees | | | | | | | | | | | |
| Teachers and Professors | 140 | 141 | 137 | 139 | 140 | 136 | 1 | -3 | 1 | 1 | -3 |
| Federal Government | 123 | 118 | 116 | 117 | 116 | 118 | -4 | -2 | 1 | -1 | 2 |
| Provincial Governments | 114 | 113 | 111 | 111 | 112 | 114 | -1 | -2 | 0 | 1 | 2 |
| Municipal Governments | 112 | 108 | 106 | 105 | 104 | 106 | -4 | -2 | -1 | -1 | 2 |
| Business Enterprises | 99 | 99 | 96 | 97 | 97 | 97 | 0 | -3 | 1 | 0 | 0 |
| Institutions ^b | 81 | 82 | 79 | 79 | 81 | 83 | 1 | -3 | 0 | 2 | 2 |
| Total ^c | 100 | 100 | 100 | 100 | 100 | 100 | | | | | |
| Average Annual Earnings (\$) | 5,529 | 5,918 | 6,612 | 7,213 | 8,156 | 9,299 | | | | | |

Source: Table A.18, based on Revenue Canada, *Taxation Statistics* annual

^a See Chapter II, for a discussion of the income sources included for each occupation.

^b Institutions include hospitals, schools and colleges (non-teaching staff), other non-profit institutions not directly part of government service.

^c Excludes persons whose major income source was other than employment. (i.e., investments, pensions, unclassified), but non-taxable returns are included for each occupation.

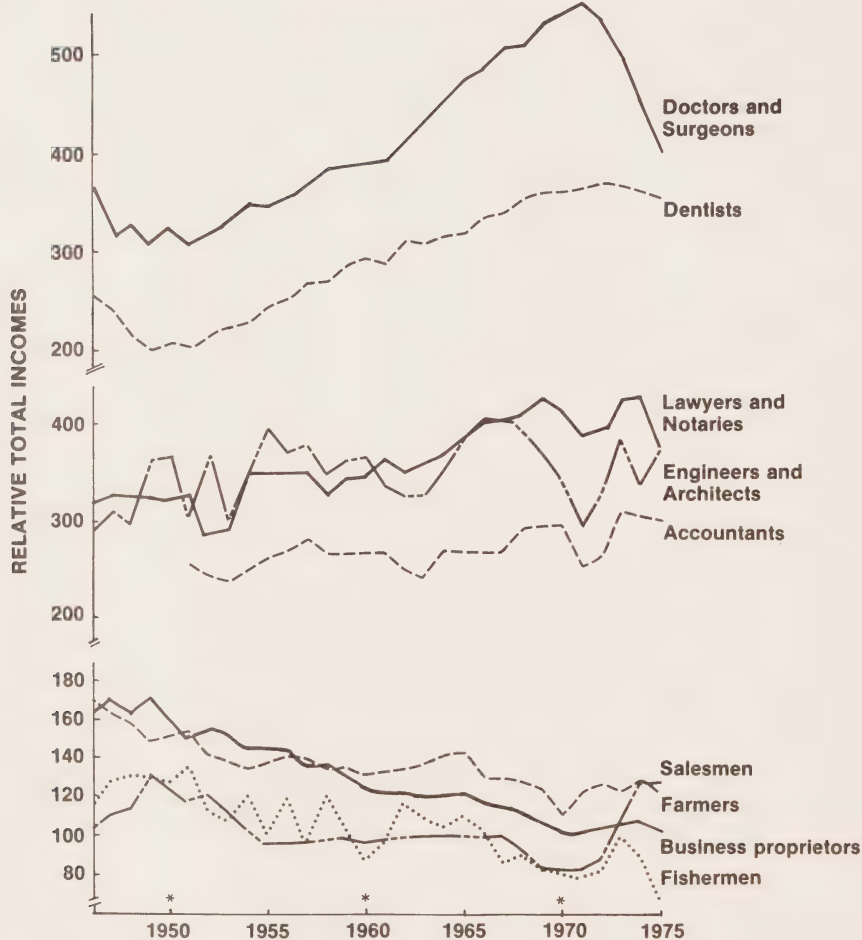
1975, however, government employees gained slightly while the relative earnings of teachers and professors fell slightly.

The overall year-by-year picture for 1970 to 1975 was one of stability or decline in relative incomes in 1971 and 1972, with only farmers and salesmen making substantial gains in these years. This was followed in 1973 by a significant increase for farmers, fishermen, and professionals outside the health services, and by stability for employees. All professionals except dentists and accountants experienced a substantial decline through 1974 and 1975, while employees' relative earnings were stable or increasing very slightly.

The substantial differences among occupations in terms of the year-to-year behaviour of their relative incomes from 1970 to 1975 suggested that a similar year-to-year analysis for the long term would usefully supplement the observations drawn from the census data in Chapter III. The data used for this long-term comparison, however, are total assessed incomes rather than employment earnings, as the latter must be computed by a laborious method while total incomes are reported directly in taxation statistics. Chart 9 presents the behaviour of relative incomes from 1946 to 1975 for the occupations showing considerable change in their relative incomes.¹ The employee groups were not included because their relative incomes have changed so slowly and smoothly, and because the differences in relative incomes

¹ Note that in Chart 9 the relative incomes scale in the lower section of the figure is twice the scale in the middle and upper sections.

CHART 9
Relative Total Incomes for Selected
Occupations, Canada 1946-1975
(Self-employed persons)



* Census years
 Source: Table A.19

among these occupational groups are small by comparison with the self-employed occupations.

As Chart 9 indicates, the relative incomes of doctors and dentists have followed remarkably similar paths: an immediate post-war decline followed by steady growth to 1971. The dentists, however, have not experienced nearly as sharp a reduction in relative incomes as doctors since 1970.

Lawyers and accountants have had strikingly similar patterns in relative incomes since 1957, except for a brief divergence in 1965-1967, while engineers and architects display wider and more frequent fluctuations. These changes tend to coincide with the business cycle: while relative earnings in these three occupations declined uniformly in 1958, 1961-62 and 1970-71, those of engineers and architects fell sooner and for longer in the 1960-62 recession than those of lawyers and accountants. This pattern was more pronounced in the recession of 1970, when the engineers and architects led the downturn by two years, with a decline of over 100 percentage points. Indeed, one should expect that earnings of engineers and architects would lead the cycle because their services are directly associated with the construction activity that is a major determinant of economic fluctuations.

Self-employed salesmen, farmers and fishermen, and business proprietors all experienced a long-run decline in relative incomes from about 1950 until 1970. The pattern of this decline, however, was different for each occupation. Relative incomes of salesmen and business proprietors frequently moved in opposite directions from 1948 to 1964, but since then have moved in the same directions. With the exception of the 1955-1959 period, and the farmers'

much stronger recovery since 1971, farmers and business proprietors also show similar patterns in relative income changes.

Although one could point to the other notable features in Chart 9, the intent of this brief exercise is to illustrate the pronounced fluctuations in the relative incomes of certain occupations and the strong similarities among some of them, patterns that are not revealed in the census data. There is an important compromise, however, between the qualified usefulness of the taxation statistics and the greater reliability of census data based on historically-consistent occupational categories.

Relative After-tax Incomes

Studies of occupational earnings differentials have used data on before-tax total income or employment income and consequently have ignored the substantial influence of the income tax system on relative after-tax incomes or earnings. Table 17 compares the employment income, total income, and after-tax total income for selected occupations for 1970 and 1975.

Note first the comparison of relative employment incomes and total incomes. In the high-income occupations (doctors, lawyers, dentists, accountants) the relative employment income is higher than the relative total income. In the case of the lower-income occupations (especially farmers), this relationship is reversed by the substantial amounts of non-employment income, chiefly transfer payments. Similarly, the differentials in both total incomes and employment incomes are narrowed substantially by the progressive income tax, particularly at the higher-income levels.

Table 17

Relative Employment Income^a, Total Income, and After-tax Income for Selected Occupations, Canada, 1970 and 1975

| | 1970 | | | | 1975 | | | |
|--------------------------|-----------------|---------------|---------------|--------------------------|-----------------|---------------|---------------|--------------------------|
| | Employ- ment | Total | After- tax | Ratio col. (3):(2) | Employ- ment | Total | After- tax | Ratio col. (7):(6) |
| | Income (1) | Income (2) | Income (3) | (4) | Income (5) | Income (6) | Income (7) | (8) |
| Self-Employed | | | | | | | | |
| Doctors and surgeons | 609 | 539 | 428 | .79 | 465 | 390 | 327 | .84 |
| Lawyers and notaries | 445 | 415 | 343 | .83 | 384 | 357 | 297 | .83 |
| Dentists | 391 | 354 | 302 | .85 | 409 | 341 | 285 | .84 |
| Engineers and architects | 355 | 347 | 307 | .88 | 331 | 363 | 306 | .84 |
| Accountants | 312 | 299 | 265 | .89 | 330 | 290 | 255 | .88 |
| Entertainers and artists | 92 | 100 | 99 | .99 | 54 | 90 | 92 | 1.02 |
| Other professionals | 135 | 142 | 133 | .94 | 123 | 150 | 141 | .94 |
| Farmers | 41 | 82 | 85 | 1.04 | 93 | 135 | 132 | .98 |
| Fishermen | 71 | 83 | 86 | 1.04 | 48 | 67 | 70 | 1.04 |
| Salesmen | 102 | 116 | 117 | 1.01 | 95 | 118 | 118 | 1.00 |
| Business proprietors | 87 | 103 | 104 | 1.01 | 75 | 108 | 107 | .99 |
| Employees | | | | | | | | |
| Teachers and professors | 140 | 128 | 126 | .98 | 136 | 119 | 199 | 1.00 |
| Federal Government | 123 | 121 | 120 | .99 | 118 | 108 | 108 | 1.00 |
| Provincial Governments | 114 | 110 | 110 | 1.00 | 114 | 105 | 105 | 1.00 |
| Municipal Governments | 112 | 108 | 109 | 1.01 | 106 | 103 | 104 | 1.01 |
| Business Enterprises | 99 | 99 | 99 | 1.00 | 97 | 97 | 97 | 1.00 |
| Institutions | 81 | 82 | 83 | 1.01 | 83 | 83 | 85 | 1.02 |
| Average | | | | | | | | |
| Incomes(\$) | 5,529 | 6,447 | 5,463 | | 9,299 | 11,696 | 10,141 | |

Sources: Columns 1 and 5, Table 15
Columns 2 and 6, Appendix Table A.19
Columns 3 and 7, Appendix Table A.20

^a Average employment income is based on both taxable and non-taxable returns but excludes persons whose major income source was other than employment, while total and after-tax incomes are based on taxable returns only but include the groups excluded in the calculation of average employment income.

These observations show the desirability of comparing after-tax relative incomes when occupational differentials are analyzed, particularly when the analysis is intended for public policy formulation or evaluation.

Household Survey Data on Relative Earnings

The previously biennial and now annual Consumer Finance Survey conducted by Statistics Canada provides a third source of data for examining changes in relative earnings by occupation.¹ Earnings data are published only for broad occupational groups. The relative earnings shown in Table 18 for 1965 to 1971 are based on the 1961 classification while those in Table 19 are based on the 1971 classification. Although the data for 1971 are based on the 1961 classification, they are only roughly comparable with the census data for broad occupational groups illustrated by Chart 4.

The Consumer Finance data illustrate the necessity to consider weeks worked as a major determinant of the earnings structure. The relative earnings for the high-income occupational groups are substantially lowered when the comparison is restricted to full-year workers because those working less than 50 weeks are more common in the lower-income groups. The effect is especially noticeable in the case of female workers.

Even though occupational groups are not comparable between the 1965-71 period and the 1972-75 period, a general impression can be

¹ See Chapter II for a brief description of these surveys.

Table 18
**Relative Average Earnings^a for Broad Occupation Groups, Canada,
1965-1971**

| Occupation | 1965 | MALES | | 1971 | 1965 | FEMALES | | 1971 |
|-------------------------|----------------------|-------|-------|----------------------|-------|---------|-------|-------|
| | | 1967 | 1969 | | | 1967 | 1969 | |
| Total Labour Force (\$) | cannot be calculated | 6,147 | 7,008 | cannot be calculated | 2,815 | 3,360 | | |
| Managerial | because | 161 | 153 | because | 151 | 147 | | |
| Professional | average | 157 | 158 | average | 178 | 182 | | |
| Clerical | earnings | 89 | 93 | earnings | 119 | 115 | | |
| Sales | for total | 99 | 96 | for total | 65 | 67 | | |
| Service | labour | 83 | 76 | labour | 67 | 64 | | |
| Transportation | force are | 97 | 97 | force are | b | 99 | | |
| Farmers, etc. | | 55 | 51 | | b | b | | |
| Miners, craftsmen | not available | 101 | 102 | not available | 101 | 96 | | |
| Labourers | | 61 | 61 | | b | b | | |
| Full-year Workers (\$) | 5,629 | 6,218 | 7,459 | 8,455 | 3,069 | 3,433 | 4,120 | 4,648 |
| Managerial | 141 | 141 | 136 | 132 | 109 | 109 | 119 | 115 |
| Professional | 135 | 148 | 141 | 143 | 138 | 144 | 141 | 157 |
| Clerical | 84 | 89 | 86 | 85 | 106 | 106 | 100 | 99 |
| Sales | 94 | 98 | 95 | 93 | 68 | 67 | 64 | 63 |
| Service | 73 | 76 | 74 | 75 | 68 | 63 | 63 | 65 |
| Transportation | 91 | 90 | 92 | 90 | b | 102 | b | 101 |
| Farmers, etc. | 58 | 50 | 50 | 45 | b | b | b | b |
| Miners, craftsmen | 94 | 95 | 93 | 96 | 90 | 87 | 88 | 85 |
| Labourers | 73 | 56 | 71 | 72 | b | b | b | b |

Percentage Change in Relative Earnings, 1965-1971

| | Total Labour Force | Full-Year Workers | |
|-------------------|--------------------|-------------------|---------|
| | | Males | Females |
| Managerial | | -6 | +6 |
| Professional | cannot be | +6 | +14 |
| Clerical | calculated | +1 | -7 |
| Sales | because | -1 | -5 |
| Service | average | +2 | -3 |
| Transportation | earnings | -1 | b |
| Farmers, etc. | for total | -22 | b |
| Miners, craftsmen | labour | +2 | -5 |
| Labourers | force are | -1 | b |
| | not available | | |

Source: See Table A.23, based on Statistics Canada, Survey of Consumer Finance, *Income Distributions by Size in Canada*, various years.

^a Earnings include wage and salary and net income from self-employment. Earnings for occupation as percentage of earnings for total group.

^b Sample size too small.

Table 19
**Relative Average Earnings^a for Broad Occupational Groups, Canada,
1972-1975**

| Occupation | 1972 | MALES | | 1975 | 1972 | FEMALES | | 1975 |
|--------------------------|-------|--------|--------|--------|-------|---------|-------|-------|
| | | 1973 | 1974 | | | 1973 | 1974 | |
| Total Labour | | | | | | | | |
| Force (\$) | 6,712 | 8,460 | 9,463 | 10,888 | 3,501 | 3,943 | 4,456 | 5,236 |
| Managerial | 191 | 170 | 171 | 164 | 176 | 192 | 185 | 189 |
| Professional | 163 | 145 | 138 | 139 | 172 | 163 | 161 | 155 |
| Clerical | 101 | 87 | 89 | 87 | 116 | 115 | 116 | 112 |
| Sales | 126 | 109 | 115 | 111 | 78 | 75 | 93 | 79 |
| Service | 93 | 77 | 78 | 77 | 62 | 62 | 66 | 63 |
| Farming, etc. | 64 | 69 | 76 | 73 | b | 49 | b | 54 |
| Processing, Machining | 116 | 99 | 98 | 94 | 121 | 98 | 101 | 100 |
| Product | | | | | | | | |
| Fabrication | 113 | 98 | 100 | 97 | 97 | 95 | 97 | 93 |
| Construction | 118 | 104 | 104 | 102 | b | b | b | b |
| Transport | 110 | 96 | 100 | 95 | 95 | 95 | 98 | 95 |
| Full-Year | | | | | | | | |
| Workers (\$) | 9,223 | 10,072 | 11,613 | 13,188 | 5,051 | 5,527 | 6,421 | 7,266 |
| Managerial | 145 | 146 | 145 | 142 | 137 | 151 | 140 | 149 |
| Professional | 135 | 134 | 126 | 127 | 143 | 141 | 177 | 137 |
| Clerical | 84 | 84 | 83 | 84 | 98 | 101 | 97 | 98 |
| Sales | 104 | 101 | 104 | 104 | 75 | 71 | 88 | 76 |
| Service | 81 | 77 | 77 | 77 | 58 | 61 | 65 | 65 |
| Farming, etc. | 51 | 61 | 67 | 68 | b | 48 | b | 57 |
| Processing, Machining | 96 | 94 | 92 | 90 | 125 | 92 | 93 | 100 |
| Product | | | | | | | | |
| Fabrication | 92 | 92 | 92 | 91 | 87 | 81 | 83 | 83 |
| Construction | 104 | 105 | 102 | 102 | b | b | b | b |
| Transport | 94 | 93 | 95 | 92 | 92 | 92 | 87 | 92 |

Percentage Change in Relative Earnings, 1972-1975

| | Total Labour Force | | Full-Year Workers | |
|------------------------|--------------------|---------|-------------------|---------|
| | Males | Females | Males | Females |
| Managerial | -14 | +7 | -2 | +9 |
| Professional | -15 | -10 | -6 | -4 |
| Clerical | -14 | -3 | 0 | 0 |
| Sales | -12 | +1 | 0 | +1 |
| Service | -17 | +1 | -5 | +12 |
| Farming, etc. | +14 | b | +33 | b |
| Processing, Machining | -19 | -17 | -6 | -20 |
| Production Fabrication | -14 | -4 | -1 | -4 |
| Construction | -14 | b | -2 | b |
| Transport | -14 | 0 | -2 | 0 |

Source: See Table A.24, based on Statistics Canada, Survey of Consumer Finance, *Income Distribution by Size in Canada*, various years.

^a Earnings include wages and salaries and net income from self-employment.
Earnings for occupation as percentage of earnings for total group.

^b Sample size too small.

obtained from the two sets of data in Tables 18 and 19. Full-year male workers show diverse changes in 1965-1971 (for example, managerial fell while professional increased), but in 1972-1975, the pattern was one of stability or general decline. Only farming (including its minor components of fishing and logging) experienced an increase in relative earnings.

A quite different set of patterns occurred for female full-year workers. In 1965-1971, the lower-income groups experienced declines while the higher-income groups improved their relative earnings. In 1972-1975, however, the result was ambiguous. Managerial and service occupations made strong gains while relative earnings declined in professional and in processing and fabricating occupations. It should also be noted that in 1972-1975, relative earnings for the total female labour force and for full-year workers showed similar changes, occupation by occupation, in both direction and magnitude. For male workers, however, the magnitude of change for the total labour force was much stronger (downward) than for full-year workers in every case except farming. The latter was the only male occupation group to show an increase in relative earnings during that period.

These data suggest that the occupational earnings structure for the total labour force was roughly stable in the 1972-1975 period. This conclusion is not necessarily inconsistent with the conclusion drawn from taxation data (of a slight narrowing) because this latter result is influenced strongly by the notable decline in 1975 of relative earnings for self-employed professionals.

Rank Order Changes in Relative Earnings

Relative earnings for selected occupations have been compared thus far in terms of a general widening or narrowing of the earnings structure and the trends found for specific occupations. However, it is also important to observe changes in the rank order of occupations across the same time periods.

Rank correlation coefficients have been calculated to determine the stability of the occupational rankings.¹ These coefficients are shown in Table 20 for the years for which data were available and for three groupings: the broad occupational groups (which include all occupations), the selected occupations which are comparable across the census years, and the occupations presented in the taxation statistics.

The rank order of broad occupational groups shows little change in the 1951-1961 period and in the 1970's, more change in 1931-1941, and the greatest change in 1941-1951. In the selected occupations drawn from census data (males and females combined), the period of most change in rankings also was 1941-1951, with subsequent decades showing less but similar change. This pattern is repeated when

¹ Spearman's footrule was used to calculate the rank correlation coefficients: $R=1-(6 \sum G)/(N^2-1)$ where G represents the positive difference in the rankings of an occupation in the two periods concerned and N is the number of occupations. This provides a rough approximation of the correlation coefficient, but is a satisfactory estimate for the present purpose.

Table 20

**Rank Correlation Coefficients for Occupational Earnings Structures, by
Data Source, Canada, 1931 to 1975**

| | 1931- 1941 | 1941- 1951 | 1951- 1961 | 1961- 1971 | 1965- 1971 | 1972- 1975 |
|----------------------------------|---------------|---------------|---------------|---------------|---------------|-------------------|
| Broad Occupational Groups | | | | | | |
| Census data (14) | .82 | .75 | .91 | - | - | - |
| Consumer Finance data | | | | | | |
| Total labour force | | | | | | |
| Males (10) | - | - | - | - | - | .88 |
| Females (8) | - | - | - | - | - | .88 |
| Full-year workers | | | | | | |
| Males (9) | - | - | - | - | .92 | .82 |
| Females (6) | - | - | - | - | 1.00 | .90 |
| Selected Occupations | | | | | | |
| Census data | | | | | | |
| Total (23) | .75 | .74 | .76 | .79 | - | - |
| Males (22) | .78 | .74 | .76 | .76 | - | - |
| Females (12) | .65 | .55 | .70 | .60 | - | - |
| Taxation data | | | | | | |
| Self-employed | | | | | | |
| professionals (7) | - | - | .63 | .75 | - | .88 ^a |
| Employees (6) | - | - | .49 | .83 | - | 1.00 ^a |

Sources: Broad occupational groups: Census, Table A.1
Consumer Finance, Tables 18 and 19

Selected occupations: Census, Tables 8, A.5 et A.6
Taxation, Table 15

^a

Time period is 1970 - 1975

Numbers in brackets refer to number of occupations included in calculations.

males are considered separately, while for females, the pattern shows more changes in the occupational rankings in each decade, with the most again occurring in 1941-1951 and the fewest in 1951-1961. The most general conclusion, therefore, is that 1941-1951 was the period of greatest change in the rankings of occupations by relative earnings.

The rank correlation coefficients for occupations from the taxation statistics show an increasing stability in rankings from 1951 to the present. However, less significance can be attached to these calculations because of the particular selection of occupations included in this group.

APPENDIX A

STATISTICAL TABLES

| | <u>Table</u> |
|--------------------------------------|---------------|
| a. Major Occupation Groups (Census) | |
| Wage and salary earnings | A.1 |
| b. Wage and Salary Earners (Census) | |
| Average annual earnings | |
| males and females combined | A.2 |
| males only | A.3 |
| females only | A.4 |
| Relative annual earnings | |
| males only | A.5 |
| females only | A.6 |
| Changes in relative earnings | |
| males and females combined | A.7 |
| Total labour force | |
| males and females combined | A.8 |
| males only | A.9 |
| females only | A.10 |
| Percentage of labour force | |
| males and females combined | A.11 |
| males only | A.12 |
| females only | A.13 and A.14 |
| Change in proportion of labour force | |
| males and females combined | A.15 |
| c. Self-Employed (Census) | |
| Average annual earnings | |
| males and females combined | A.16 |
| Total labour force | |
| males and females combined | A.17 |
| d. Taxation Statistics | |
| Average annual earnings | A.18 |
| Relative total income | A.19 |
| Relative after-tax income | A.20 |
| Numbers of persons by occupation | A.21 |
| Percentage of total persons | A.22 |

APPENDIX A (Cont'd)

e. Consumer Finance Survey data

Broad occupation groups

| | |
|-----------------------------|------|
| average earnings, 1965-1971 | A.23 |
| average earnings, 1972-1975 | A.24 |

| | |
|--|------|
| f. Relative Demand-Supply Change Analysis by Occupation by Decade 1931 to 1971 | A.25 |
|--|------|

TABLE A.1

RELATIVE WAGE AND SALARY EARNINGS BY MAJOR OCCUPATION GROUPS^a FOR CANADA 1931 TO 1961

| Occupation Group | Earnings as a Percentage of Average Earnings for all Occupations | | | |
|----------------------------------|--|------|------|------|
| | 1931 | 1941 | 1951 | 1961 |
| All Occupations | 100 | 100 | 100 | 100 |
| Managerial | 336 | 279 | 188 | 203 |
| Professional | 168 | 149 | 125 | 140 |
| Clerical | 119 | 106 | 95 | 87 |
| Commercial and Financial | 130 | 114 | 93 | 94 |
| Manufacturing and Mechanical | 103 | 109 | 115 | 108 |
| Construction | 102 | 102 | 113 | 103 |
| Labourers | 57 | 69 | 82 | 68 |
| Transportation and Communication | 123 | 116 | 111 | 105 |
| Service | 62 | 53 | 57 | 59 |
| Personal | 51 | 41 | 49 | 50 |
| Protective and Other | 148 | 130 | 117 | 110 |
| Agricultural | 38 | 34 | 41 | 42 |
| Fishing | 54 | 47 | 46 | 47 |
| Logging | 52 | 55 | 63 | 64 |
| Mining | 92 | 129 | 129 | 125 |
| Not Stated | 102 | 71 | 77 | 99 |

Source: Noah M. Meltz, *Manpower in Canada, 1931-1961*, p. 246-249.

^aExcludes Armed Forces

TABLE A.2

AVERAGE ANNUAL WAGE AND SALARY EARNINGS IN SELECTED OCCUPATIONS,
MALES AND FEMALES COMBINED, CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| | (dollars) | | | | |
| All Occupations ^a | 847 | 867 | 1,860 | 3,170 | 5,337 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 2,536 | 5,186 |
| <u>Professional</u> | | | | | |
| Architects | 2,590 | 2,217 | 3,664 | 6,632 | 12,286 |
| Engineers | | | | | |
| Chemical | | | 3,917 | 7,613 | 10,761 |
| Civil | | | 3,752 | 7,104 | 11,284 |
| Electrical | 2,443 | 2,363 | 3,816 | 7,316 | 11,073 |
| Physicians & Surgeons | 3,095 | 2,689 | 4,007 | 6,575 | 18,057 |
| Dentists | 1,915 | 1,901 | 4,095 | 6,064 | 17,273 |
| Nurses, graduate | 914 | 703 | 1,730 | 2,780 | 4,910 |
| Optometrists | | | | 6,004 | 13,757 |
| Judges & Magistrates | 5,607 | 5,358 | 6,000+ | 10,062 | 20,935 |
| Lawyers & Notaries | 3,214 | 2,779 | 3,916 | 7,221 | 14,070 |
| Physicists | | | | 7,362 | 11,237 |
| Biologists | | | | 5,643 | 8,265 |
| Economists | | | | 6,599 | 10,499 |
| Professors & Teachers | 1,118 | 1,017 | 1,965 | 4,214 | 7,357 |
| Professors | 2,477 | 2,175 | 3,457 | 6,825 | |
| Teachers | 1,066 | 962 | 1,887 | 4,040 | |
| Dieticians & Nutritionists | | | | 3,053 | 5,757 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 836 | 731 | 1,654 | 2,570 | 3,796 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 500 | 916 |
| Service Station Attendants | | | 1,643 | 2,063 | 2,382 |
| Insurance Salesmen & Agents | | | | 5,143 | 8,066 |
| Salesmen, securities | | | | 5,780 | 9,012 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 2,612 | 3,932 |
| Barbers & Hairdressers | 759 | 611 | 1,428 | 2,015 | 2,987 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | 1,649 | 1,592 | 2,606 | 4,443 | 8,896 |
| Policemen & Detectives | 1,558 | 1,377 | 2,484 | 4,307 | 8,683 |

TABLE A.2 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> (dollars) | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|--------------------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | 2,159 | 2,658 | 4,245 | 8,370 | 14,002 |
| Locomotive Engineers & Firemen | 1,812 | 1,935 | 3,321 | 5,554 | 8,845 |
| Deck Officers, ship | | | | 5,207 | 9,295 |
| Engineering Officers, ship | | | | 4,508 | 8,300 |
| Engine & Boiler-Room Crew, ship | | | | 3,063 | 5,469 |
| Bus Drivers | | 1,181 | 2,360 | 3,527 | 5,542 |
| Taxi Drivers & Chauffeurs | | 732 | 1,683 | 2,431 | 4,059 |
| Subway & Street Railway Operators | 1,325 | 1,347 | 2,560 | 4,596 | 8,250 |
| Telegraph Operators | 1,460 | 1,510 | 2,601 | 3,970 | 6,777 |
| Mail Carriers | 1,117 | 995 | 2,092 | 3,268 | 5,501 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 1,520 | 3,285 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | 1,051 | 933 | 1,932 | 2,949 | 5,406 |
| Fish canning, curing & packing | | | | 1,103 | 1,758 |
| Metal Rolling | 1,065 | 1,614 | 2,747 | 4,857 | 7,751 |
| Tool & Die Making | 1,112 | 1,485 | 2,793 | 4,476 | 8,059 |
| Motor Vehicle Mechanics & Repairmen | | | 2,107 | 3,275 | 5,819 |
| Radio & T.V. Service Repairmen | | | | 3,346 | 5,670 |
| Typesetters & Compositors | | | 2,455 | 4,097 | 6,465 |
| Power Station Operators | | 1,518 | 2,637 | 4,827 | 9,180 |
| Motion Picture Projectionists | 1,643 | 1,474 | 2,601 | 3,769 | 6,483 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | 807 | 786 | 2,104 | 2,990 | 5,938 |
| Plasterers & Related | 756 | 690 | 2,160 | 3,094 | 5,966 |
| Inspecting, Testing, etc., Construction, except Electrical | | 1,480 | 2,543 | 4,201 | 7,091 |

Sources: Noah M. Meltz, *op cit.*
 1961 *Census of Canada*, Vol. III, Pt. 3 (Bulletin 3.3-7), Catalogue 94-539, Table 21.
 1971 *Census of Canada*, Vol. III, Pt. 6 (Bulletin 3.6-7), Catalogue 94-765, Table 15.

^a Excludes Armed Forces

Note: Occupations which cover only 1961 and 1971 include the Yukon and Northwest Territories.

TABLE A.3

AVERAGE ANNUAL WAGE AND SALARY EARNINGS IN SELECTED
OCCUPATIONS, MALES, CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> (dollars) | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|--------------------------|-------------|-------------|
| All Occupations ^a | 925 | 993 | 2,131 | 3,660 | 6,599 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 3,606 | 7,321 |
| <u>Professional</u> | | | | | |
| Architects | 2,591 | 2,246 | 3,712 | 6,694 | 12,496 |
| Engineers - | | | | | |
| Chemical | | | 3,918 | 7,624 | 10,831 |
| Civil | | | 3,752 | 7,111 | 11,325 |
| Electrical | 2,443 | 2,363 | 3,817 | 7,329 | 11,139 |
| Physicists | | | | 7,440 | 11,237 |
| Biologists & Related Scientists | | | | 5,991 | 9,221 |
| Physicians & Surgeons | 3,133 | 2,813 | 4,268 | 6,876 | 19,791 |
| Dentists | 1,925 | 1,998 | 4,415 | 7,304 | 18,195 |
| Nurses, Graduate | | 865 | 2,205 | 3,457 | 6,188 |
| Nurses-in-Training | | 369 | 636 | 1,795 | 4,416 |
| Optometrists | | | | 6,410 | 15,296 |
| Judges & Magistrates | 5,640 | 5,369 | 6,000+ | 10,178 | 21,541 |
| Lawyers & Notaries | 3,236 | 2,833 | 3,987 | 7,366 | 14,597 |
| Economists | | | | 6,993 | 10,933 |
| Systems Analysts, Computer Programmers | | | | | 8,844 |
| Dieticians & Nutritionists | | | | 4,543 | 8,404 |
| Professors & Teachers | 1,712 | 1,533 | 2,795 | 5,768 | 9,979 |
| Professors | 2,564 | 2,198 | 3,608 | 7,113 | |
| Teachers | 1,575 | 1,416 | 2,667 | 5,527 | |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 966 | 912 | 2,201 | 3,663 | 6,424 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 495 | 903 |
| Service Station Attendants | | | 1,654 | 2,068 | 2,426 |
| Insurance Salesmen & Agents | | | | 5,283 | 8,625 |
| Salesmen, Securities | | | | 5,876 | 9,555 |
| <u>Service</u> | | | | | |
| Personal - | | | | | |
| Bartenders | | | | 2,644 | 4,215 |
| Barbers, Hairdressers & Rel. | 841 | 761 | 1,805 | 2,643 | 4,458 |

TABLE A.3 (Continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> (dollars) | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|--------------------------|-------------|-------------|
| <u>Service</u> | | | | | |
| Protective and Other | | | | | |
| Fire-Fighting Occupations | 1,649 | 1,592 | 2,606 | 4,443 | 8,896 |
| Police and Detectives | 1,561 | 1,380 | 2,490 | 4,324 | 8,810 |
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & | | | | | |
| Flight Engineers | 2,159 | 2,670 | 4,258 | 8,378 | 14,002 |
| Locomotive Engineers & Firemen | 1,812 | 1,935 | 3,321 | 5,554 | 8,845 |
| Deck Officers | | | | 5,207 | 9,295 |
| Engineering Officers, Ship | | | | 4,508 | 8,300 |
| Engine & Boiler-Room Crew, Ship | | | | 3,063 | 5,469 |
| Bus Drivers | | 1,183 | 2,364 | 3,582 | 5,923 |
| Taxi Drivers & Chauffeurs | | 733 | 1,689 | 2,448 | 4,116 |
| Subway and Street Railway Operators | 1,325 | 1,347 | 2,562 | 4,596 | 8,250 |
| Telegraph Operators | 1,504 | 1,574 | 2,700 | 4,093 | 7,115 |
| Mail Carriers | 1,121 | 1,000 | 2,108 | 3,344 | 5,722 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 1,532 | 3,343 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | 1,051 | 933 | 1,932 | 2,953 | 5,517 |
| Fish Canning, Curing & Packing | | | | 1,428 | 2,277 |
| Metal Rolling | 1,065 | 1,614 | 2,747 | 4,857 | 7,751 |
| Tool & Die Making | 1,112 | 1,485 | 2,794 | 4,485 | 8,118 |
| Motor Vehicle Mechanics & | | | | | |
| Repairmen | | | 2,108 | 3,276 | 5,833 |
| Radio & T.V. Service Repairmen | | | | 3,357 | 5,767 |
| Typesetters & Compositors | | | 2,509 | 4,205 | 6,929 |
| Power Station Operators | | 1,518 | 2,637 | 4,827 | 9,180 |
| Motion Picture Projectionists | 1,646 | 1,477 | 2,607 | 3,784 | 6,483 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & | | | | | |
| Concrete Finishing | 807 | 786 | 2,104 | 2,991 | 5,950 |
| Plasterers & Related | 756 | 690 | 2,160 | 3,094 | 5,966 |
| Inspecting, Testing, etc., | | | | | |
| Construction, except Electrical | | 1,480 | 2,543 | 4,201 | 7,091 |

Source: See Table A.2

^a Excludes Armed Forces

Note: Occupations which cover only 1961 and 1971 include the Yukon and Northwest Territories.

TABLE A.4

AVERAGE ANNUAL WAGE AND SALARY EARNINGS IN SELECTED
OCCUPATIONS, FEMALES, CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> (dollars) | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|--------------------------|-------------|-------------|
| All Occupations ^a | 559 | 490 | 1,220 | 1,993 | 3,213 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 1,531 | 3,393 |
| <u>Professional</u> | | | | | |
| Architects | 2,200 | 769 | 2,583 | 4,191 | 5,883 |
| Engineers | | | | | |
| Chemical | | | 2,999 | 5,464 | 6,759 |
| Civil | | | | 4,368 | 7,481 |
| Electrical | | | 3,200 | 4,675 | 6,030 |
| Physicians & Surgeons | 2,209 | 1,272 | 1,756 | 4,300 | 8,756 |
| Dentists | 1,657 | 947 | 1,938 | 2,820 | 9,265 |
| Nurses, graduate | 914 | 702 | 1,724 | 2,752 | 4,853 |
| Optometrists | | | | 1,871 | 6,542 |
| Judges & Magistrates | 2,100 | 900 | 2,499 | 4,729 | 10,191 |
| Lawyers & Notaries | 1,941 | 1,510 | 2,471 | 4,375 | 8,179 |
| Physicists | | | | 5,304 | |
| Biologists | | | | 3,851 | 5,513 |
| Economists | | | | 3,753 | 6,973 |
| Professors & Teachers | 920 | 798 | 1,674 | 3,429 | 5,685 |
| Professors | 1,721 | 1,855 | 2,635 | 5,039 | |
| Teachers | 917 | 793 | 1,664 | 3,397 | |
| Dieticians & Nutritionists | | | | 2,999 | 5,641 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 829 | 723 | 1,642 | 2,534 | 3,718 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 639 | 1,089 |
| Service Station Attendants | | | 758 | 1,640 | 1,182 |
| Insurance Salesmen & Agents | | | | 2,944 | 4,482 |
| Salesmen, securities | | | | 3,264 | 3,915 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 1,431 | 2,389 |
| Barbers & Hairdressers | 595 | 486 | 1,150 | 1,679 | 2,481 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | | | | | |
| Policemen & Detectives | 1,181 | 939 | 1,846 | 2,931 | 4,636 |

TABLE A.4 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> (dollars) | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|--------------------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | | 1,380 | 1,999 | 4,440 | |
| Locomotive Engineers & Firemen | | | | | |
| Deck Officers, ship | | | | | |
| Engineering Officers, ship | | | | | |
| Engine & Boiler-Room Crew, ship | | | | | |
| Bus Drivers | | 467 | 760 | 1,302 | 1,970 |
| Taxi Drivers & Chauffeurs | | 483 | 1,145 | 1,473 | 2,675 |
| Subway & Street Railway Operators | | | 2,111 | | |
| Telegraph Operators | 1,105 | 948 | 1,741 | 2,882 | 4,311 |
| Mail Carriers | 606 | 586 | 932 | 1,584 | 2,735 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 659 | 1,591 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | | | | 2,191 | 1,317 |
| Fish canning, curing & packing | | | | 667 | 1,260 |
| Metal Rolling | | | | | |
| Tool & Die Making | | | 1,750 | 2,473 | 4,097 |
| Motor Vehicle Mechanics & Repairmen | | | 1,726 | 2,300 | 4,019 |
| Radio & T.V. Service Repairmen | | | | 2,528 | 3,154 |
| Typesetters & Compositors | | | 1,357 | 2,335 | 3,523 |
| Power Station Operators | | | | | |
| Motion Picture Projectionists | 840 | 425 | 1,499 | 2,175 | |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | | | | 1,787 | 4,178 |
| Plasterers & Related | | | | | |
| Inspecting, Testing, etc., Construction, except Electrical | | | | | |

Sources: See Table A.2

^a Excludes Armed Forces

Notes: See Table A.2

TABLE A.5

AVERAGE ANNUAL WAGE AND SALARY EARNINGS FOR MALES IN SELECTED
OCCUPATIONS AS A PERCENTAGE OF AVERAGE ANNUAL EARNINGS FOR
ALL OCCUPATIONS, CANADA, 1931-1971

| | 1931 | 1941 | 1951 | 1961 | 1971 |
|--|------|------|-------|-------|-------|
| All Occupations ^a (Actual) (\$) | 925 | 993 | 2,131 | 3,660 | 6,599 |
| (Percent of Total) | 100 | 100 | 100 | 100 | 100 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 99 | 111 |
| <u>Professional</u> | | | | | |
| Architects | 280 | 226 | 174 | 183 | 189 |
| Engineers | | | | | |
| Chemical | | | 184 | 208 | 164 |
| Civil | | | 176 | 194 | 172 |
| Electrical | 264 | 238 | 179 | 200 | 169 |
| Physicians & Surgeons | 339 | 283 | 200 | 188 | 300 |
| Dentists | 208 | 201 | 207 | 200 | 276 |
| Nurses, graduate | | 87 | 103 | 94 | 94 |
| Optometrists | | | | 175 | 232 |
| Judges & Magistrates | 610 | 541 | | 278 | 326 |
| Lawyers & Notaries | 350 | 285 | 187 | 201 | 221 |
| Physicists | | | | 203 | 170 |
| Biologists | | | | 164 | 140 |
| Economists | | | | 191 | 166 |
| Professors & Teachers | 185 | 154 | 131 | 158 | 151 |
| Professors | 277 | 221 | 169 | 194 | |
| Teachers | 170 | 143 | 125 | 151 | |
| Dieticians & Nutritionists | | | | 124 | 127 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 104 | 92 | 103 | 100 | 97 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 14 | 14 |
| Service Station Attendants | | | 78 | 57 | 37 |
| Insurance Salesmen & Agents | | | | 144 | 131 |
| Salesmen, securities | | | | 161 | 145 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 72 | 64 |
| Barbers & Hairdressers | 91 | 77 | 85 | 72 | 68 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | 178 | 160 | 122 | 121 | 135 |
| Policemen & Detectives | 169 | 139 | 117 | 118 | 134 |

TABLE A.5 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | 233 | 269 | 200 | 229 | 212 |
| Locomotive Engineers & Firemen | 196 | 195 | 156 | 152 | 134 |
| Deck Officers, ship | | | | 142 | 141 |
| Engineering Officers, ship | | | | 123 | 126 |
| Engine & Boiler-Room Crew, ship | | | | 84 | 83 |
| Bus Drivers | | 119 | 111 | 98 | 90 |
| Taxi Drivers & Chauffeurs | | 74 | 79 | 67 | 62 |
| Subway & Street Railway Operators | 143 | 136 | 120 | 126 | 125 |
| Telegraph Operators | 163 | 159 | 127 | 112 | 108 |
| Mail Carriers | 121 | 101 | 99 | 91 | 87 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 42 | 51 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | 114 | 94 | 91 | 81 | 84 |
| Fish canning, curing & packing | | | | 39 | 35 |
| Metal Rolling | 115 | 163 | 129 | 133 | 117 |
| Tool & Die Making | 120 | 150 | 131 | 123 | 123 |
| Motor Vehicle Mechanics & Repairmen | | | 99 | 90 | 88 |
| Radio & T.V. Service Repairmen | | | | 92 | 87 |
| Typesetters & Compositors | | | 118 | 115 | 105 |
| Power Station Operators | | 153 | 124 | 132 | 139 |
| Motion Picture Projectionists | 178 | 149 | 122 | 103 | 98 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | 87 | 79 | 99 | 82 | 90 |
| Plasterers & Related | 82 | 69 | 101 | 85 | 90 |
| Inspecting, Testing, etc., Construction, except Electrical | | 149 | 119 | 115 | 107 |

Sources: See Table A.3

^a Excludes Armed Forces.

TABLE A.6

AVERAGE ANNUAL WAGE AND SALARY EARNINGS FOR FEMALES IN SELECTED
OCCUPATIONS AS A PERCENTAGE OF AVERAGE ANNUAL EARNING FOR ALL
OCCUPATIONS, CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a (Actual)(\$) | 559 | 490 | 1,220 | 1,993 | 3,213 |
| (Percent of Total) | 100 | 100 | 100 | 100 | 100 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 77 | 106 |
| <u>Professional</u> | | | | | |
| Architects | 394 | 157 | 212 | 210 | 183 |
| Engineers | | | | | |
| Chemical | | | 246 | 274 | 210 |
| Civil | | | | 219 | 233 |
| Electrical | | | 262 | 235 | 188 |
| Physicians & Surgeons | 395 | 260 | 144 | 216 | 273 |
| Dentists | 296 | 193 | 159 | 142 | 288 |
| Nurses, graduate | 164 | 143 | 141 | 138 | 151 |
| Optometrists | | | | 94 | 204 |
| Judges & Magistrates | 376 | 184 | 205 | 237 | 317 |
| Lawyers & Notaries | 347 | 308 | 203 | 220 | 255 |
| Physicists | | | | 266 | |
| Biologists | | | | 193 | 172 |
| Economists | | | | 188 | 217 |
| Professors & Teachers | 165 | 163 | 137 | 172 | 177 |
| Professors | 308 | 379 | 216 | 253 | |
| Teachers | 164 | 162 | 136 | 170 | |
| Dieticians & Nutritionists | | | | 150 | 176 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 148 | 148 | 135 | 127 | 116 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 32 | 34 |
| Service Station Attendants | | | 62 | 82 | 37 |
| Insurance Salesmen & Agents | | | | 148 | 140 |
| Salesmen, securities | | | | 164 | 122 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 72 | 74 |
| Barbers & Hairdressers | 106 | 99 | 94 | 84 | 77 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | | | | | |
| Policemen & Detectives | 211 | 192 | 151 | 147 | 144 |

TABLE A.6 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | | 282 | 164 | 223 | |
| Locomotive Engineers & Firemen | | | | | |
| Deck Officers, ship | | | | | |
| Engineering Officers, ship | | | | | |
| Engine & Boiler-Room Crew, ship | | | | | |
| Bus Drivers | | 95 | 62 | 65 | 61 |
| Taxi Drivers & Chauffeurs | | 99 | 94 | 74 | 83 |
| Subway & Street Railway Operators | | | 173 | | |
| Telegraph Operators | 198 | 193 | 143 | 145 | 134 |
| Mail Carriers | 108 | 120 | 76 | 79 | 85 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 33 | 50 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | | | | 110 | 41 |
| Fish canning, curing & packing | | | | 33 | 39 |
| Metal Rolling | | | | | |
| Tool & Die Making | | | 143 | 124 | 128 |
| Motor Vehicle Mechanics & Repairmen | | | 141 | 115 | 125 |
| Radio & T.V. Service Repairmen | | | | 127 | 98 |
| Typesetters & Compositors | | | 111 | 117 | 110 |
| Power Station Operators | | | | | |
| Motion Picture Projectionists | 140 | 87 | 123 | 109 | |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | | | | 90 | 130 |
| Plasterers & Related | | | | | |
| Inspecting, Testing, etc., | | | | | |
| Construction, except Electrical | | | | | |

Sources: See Table A.4

^a Excludes Armed Forces.

TABLE A.7

INTERDECADE PERCENTAGE CHANGES IN RELATIVE WAGE AND SALARY
EARNINGS IN SELECTED OCCUPATIONS, MALES AND FEMALES COMBINED,
1931-1971

| | <u>1931-41</u> | <u>1941-51</u> | <u>1951-61</u> | <u>1961-71</u> |
|---|----------------|----------------|----------------|----------------|
| | (per cent) | | | |
| <u>Managerial</u> | | | | |
| Postmasters | | | | 21 |
| <u>Professional</u> | | | | |
| Architects | -16 | -23 | 6 | 10 |
| Engineers | | | | |
| Chemical | | | 14 | -16 |
| Civil | | | 11 | - 6 |
| Electrical | - 5 | -25 | 13 | -10 |
| Physicians & Surgeons | -15 | -31 | - 4 | 63 |
| Dentists | - 3 | 0 | -13 | 70 |
| Nurses, graduate | -25 | 15 | - 5 | 5 |
| Optometrists | | | | 37 |
| Judges & Magistrates | - 7 | | | 24 |
| Lawyers & Notaries | -15 | -34 | 8 | 16 |
| Physicists | | | | - 9 |
| Biologists | | | | -13 |
| Economists | | | | - 5 |
| Professors & Teachers | -11 | - 9 | 25 | 4 |
| Professors | -14 | -26 | 16 | |
| Teachers | -12 | - 9 | 26 | |
| Dieticians & Nutritionists | | | | 13 |
| <u>Clerical</u> | | | | |
| Secretaries, Stenographers & Typists | -15 | 6 | - 9 | -12 |
| <u>Commercial & Financial</u> | | | | |
| Newsboys | | | | 6 |
| Service Station Attendants | | | -26 | -31 |
| Insurance Salesmen & Agents | | | | - 7 |
| Salesmen, securities | | | | - 7 |
| <u>Service</u> | | | | |
| <u>Personal</u> | | | | |
| Bartenders | | | | -10 |
| Barbers & Hairdressers | -22 | 10 | -17 | -13 |
| Protective & Other | | | | |
| Fire-fighting Occupations | - 6 | -24 | 0 | 19 |
| Policemen & Detectives | -14 | -16 | 1 | 20 |

TABLE A.7 (continued)

| | <u>1931-41</u> | <u>1941-51</u> | <u>1951-61</u> | <u>1961-71</u> |
|---|----------------|----------------|----------------|----------------|
| | | | (per cent) | |
| <u>Transportation & Communication</u> | | | | |
| Air Pilots, Navigators & | | | | |
| Flight Engineers | 20 | -26 | 16 | - 1 |
| Locomotive Engineers & Firemen | 4 | -20 | - 2 | - 5 |
| Deck Officers, ship | | | | 6 |
| Engineering Officers, ship | | | | 10 |
| Engine & Boiler-Room Crew, ship | | | | 5 |
| Bus Drivers | | - 7 | -13 | - 6 |
| Taxi Drivers & Chauffeurs | | 7 | -14 | - 1 |
| Subway & Street Railway Operators | - 1 | -11 | 5 | 7 |
| Telegraph Operators | 1 | -20 | -11 | 2 |
| Mail Carriers | -13 | - 3 | - 8 | 0 |
| <u>Fishing, Hunting, Trapping</u> | | | | |
| Fishermen | | | | 29 |
| <u>Manufacturing & Mechanical</u> | | | | |
| Flour & Grain Milling | -13 | - 4 | -11 | 9 |
| Fish canning, curing & packing | | | | - 6 |
| Metal Rolling | 48 | -20 | 3 | - 5 |
| Tool & Die Making | 31 | -12 | - 6 | 7 |
| Motor Vehicle Mechanics & Repairmen | | | - 9 | 6 |
| Radio & T.V. Service Repairmen | | | | |
| Typesetters & Compositors | | | - 2 | - 6 |
| Power Station Operators | | -19 | 7 | 13 |
| Motion Picture Projectionists | -12 | -18 | -15 | 2 |
| <u>Construction</u> | | | | |
| Brick & Stone Masons & | | | | |
| Concrete Finishing | - 4 | 24 | -17 | 18 |
| Plasterers & Related | -10 | 45 | -16 | 14 |
| Inspecting, Testing, etc., | | | | |
| Construction, except Electrical | | -20 | - 3 | 0 |

Source: Table A.2.

TABLE A.8

TOTAL LABOUR FORCE (MALE AND FEMALE COMBINED) IN SELECTED
OCCUPATIONS, CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a | 3,917,612 | 4,195,951 | 5,214,913 | 6,342,289 | 8,541,340 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 6,087 | 5,715 |
| <u>Professional</u> | | | | | |
| Architects | 1,298 | 1,202 | 1,740 | 2,940 | 4,040 |
| Engineers | | | | | |
| Chemical | | | 2,572 | 2,995 | 3,460 |
| Civil | | | 7,743 | 11,877 | 21,445 |
| Electrical | 3,937 | 4,557 | 6,349 | 8,758 | 14,995 |
| Physicians & Surgeons | 10,020 | 10,723 | 14,325 | 21,266 | 28,580 |
| Dentists | 4,039 | 3,740 | 4,608 | 5,463 | 6,425 |
| Nurses, graduate | 20,462 | 26,626 | 35,138 | 61,553 | 109,345 |
| Optometrists | | | | 1,195 | 1,525 |
| Judges & Magistrates | 544 | 478 | 597 | 831 | 1,265 |
| Lawyers & Notaries | 8,058 | 7,920 | 9,038 | 12,068 | 16,315 |
| Physicists | | | | 699 | 780 |
| Biologists | | | | 1,663 | 2,970 |
| Economists | | | | 2,302 | 5,615 |
| Professors & Teachers | 86,183 | 90,588 | 109,063 | 178,839 | 327,085 |
| Professors | 3,200 | 4,135 | 5,422 | 11,145 | |
| Teachers | 82,983 | 86,453 | 103,641 | 167,694 | |
| Dieticians & Nutritionists | | | | 1,915 | 1,790 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 68,524 | 81,213 | 138,523 | 216,424 | 334,985 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 5,944 | 7,655 |
| Service Station Attendants | | | 7,737 | 20,036 | 30,500 |
| Insurance Salesmen & Agents | | | | 28,038 | 33,635 |
| Salesmen, securities | | | | 5,343 | 7,795 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 9,387 | 13,070 |
| Barbers & Hairdressers | 23,109 | 25,887 | 24,415 | 42,114 | 56,350 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | 4,610 | 4,975 | 8,878 | 14,266 | 18,045 |
| Policemen & Detectives | 10,978 | 16,070 | 20,074 | 30,007 | 42,350 |

TABLE A.8 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | 335 | 571 | 1,141 | 2,695 | 4,160 |
| Locomotive Engineers & Firemen | 13,868 | 12,323 | 16,620 | 11,317 | 7,875 |
| Deck Officers, ship | | | | 5,110 | 4,990 |
| Engineering Officers, ship | | | | 3,025 | 3,050 |
| Engine & Boiler-Room Crew, ship | | | | 1,769 | 1,530 |
| Bus Drivers | | 2,967 | 11,451 | 18,611 | 31,400 |
| Taxi Drivers & Chauffeurs | | 12,344 | 21,354 | 22,071 | 25,080 |
| Subway & Street Railway Operators | 8,673 | 6,544 | 6,226 | 1,342 | 705 |
| Telegraph Operators | 6,784 | 5,360 | 6,625 | 4,375 | 1,645 |
| Mail Carriers | 6,751 | 7,400 | 9,043 | 13,435 | 17,555 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 31,807 | 26,590 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | 1,628 | 2,550 | 2,104 | 2,244 | 3,035 |
| Fish canning, curing & packing | | | | 10,679 | 14,500 |
| Metal Rolling | 468 | 900 | 1,701 | 2,254 | 2,995 |
| Tool & Die Making | 2,851 | 7,049 | 9,443 | 10,606 | 10,310 |
| Motor Vehicle Mechanics & Repairmen | | | 64,328 | 88,979 | 112,260 |
| Radio & T.V. Service Repairmen | | | | 7,720 | 9,805 |
| Typesetters & Compositors | | | 15,253 | 16,316 | 12,795 |
| Power Station Operators | | | 3,888 | 4,926 | 4,790 |
| Motion Picture Projectionists | 1,363 | 1,536 | 1,944 | 1,392 | 1,465 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | 12,102 | 8,948 | 18,791 | 27,049 | 25,650 |
| Plasterers & Related | 6,222 | 4,669 | 9,270 | 10,042 | 10,565 |
| Inspecting, Testing, etc., Construction, except Electrical | | 449 | 1,617 | 3,879 | 4,395 |

Sources: Noah M. Meltz, *op. cit.*, pp. 62-65
 1961 *Census of Canada*, Vol. III, Pt. 1 (Bulletin 3.1-3) Catalogue 94-503, Table 6.
 1971 *Census of Canada*, Vol. III, Pt. 2 (Bulletin 3.2-3) Catalogue 94-717, Table 2.

^a Excludes Armed Forces.

TABLE A.9
MALE LABOUR FORCE IN SELECTED OCCUPATIONS, CANADA,
1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a | 3,252,310 | 3,363,111 | 4,051,020 | 4,581,839 | 5,581,840 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 2,952 | 2,750 |
| <u>Professional</u> | | | | | |
| Architects | 1,296 | 1,186 | 1,697 | 2,874 | 3,925 |
| Engineers | | | | | |
| Chemical | | | 2,569 | 2,981 | 3,410 |
| Civil | | | 7,743 | 11,848 | 21,225 |
| Electrical | 3,937 | 4,557 | 6,338 | 8,718 | 14,815 |
| Physicians & Surgeons | 9,817 | 10,339 | 13,665 | 19,814 | 25,695 |
| Dentists | 4,007 | 3,695 | 4,540 | 5,228 | 6,120 |
| Nurses, graduate | | 153 | 868 | 2,352 | 4,995 |
| Optometrists | | | | 1,160 | 1,430 |
| Judges & Magistrates | 539 | 477 | 592 | 814 | 1,190 |
| Lawyers & Notaries | 8,004 | 7,791 | 8,841 | 11,759 | 15,535 |
| Physicists | | | | 673 | 740 |
| Biologists | | | | 1,394 | 2,250 |
| Economists | | | | 2,025 | 5,040 |
| Professors & Teachers | 21,215 | 25,846 | 33,932 | 57,879 | 135,910 |
| Professors | 2,941 | 3,858 | 4,610 | 8,779 | |
| Teachers | 18,274 | 21,988 | 29,322 | 49,100 | |
| Dieticians & Nutritionists | | | | 66 | 85 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 3,531 | 3,331 | 5,038 | 7,014 | 10,300 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 5,732 | 7,115 |
| Service Station Attendants | | | 7,510 | 19,497 | 29,175 |
| Insurance Salesmen & Agents | | | | 26,367 | 29,480 |
| Salesmen, securities | | | | 5,149 | 7,130 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 9,136 | 11,170 |
| Barbers & Hairdressers | 16,368 | 14,889 | 13,561 | 18,825 | 20,730 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | 4,610 | 4,975 | 8,878 | 14,266 | 18,045 |
| Policemen & Detectives | 10,900 | 15,960 | 19,874 | 29,634 | 41,170 |

TABLE A.9 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & | | | | | |
| Flight Engineers | 335 | 566 | 1,135 | 2,688 | 4,140 |
| Locomotive Engineers & Firemen | 13,868 | 12,323 | 16,620 | 11,317 | 7,870 |
| Deck Officers, ship | | | | 5,110 | 4,990 |
| Engineering Officers, ship | | | | 3,025 | 3,050 |
| Engine & Boiler-Room Crew, ship | | | | 1,769 | 1,535 |
| Bus Drivers | | 2,961 | 11,379 | 18,083 | 28,350 |
| Taxi Drivers & Chauffeurs | | 12,281 | 21,079 | 21,677 | 24,180 |
| Subway & Street Railway Operators | 8,673 | 6,544 | 6,195 | 1,342 | 685 |
| Telegraph Operators | 6,035 | 4,812 | 5,604 | 3,922 | 1,460 |
| Mail Carriers | 6,700 | 7,310 | 8,786 | 12,792 | 16,225 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 31,566 | 26,075 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | 1,628 | 2,550 | 2,104 | 2,233 | 2,985 |
| Fish canning, curing & packing | | | | 6,118 | 7,605 |
| Metal Rolling | 468 | 900 | 1,701 | 2,254 | 2,995 |
| Tool & Die Making | 2,851 | 7,049 | 9,429 | 10,559 | 10,170 |
| Motor Vehicle Mechanics | | | | | |
| & Repairmen | | | 64,199 | 88,830 | 111,350 |
| Radio & T.V. Service Repairmen | | | | 7,647 | 9,525 |
| Typesetters & Compositors | | | 14,521 | 15,313 | 11,170 |
| Power Station Operators | | 2,328 | 3,888 | 4,926 | 4,790 |
| Motion Picture Projectionists | 1,358 | 1,531 | 1,933 | 1,376 | 1,430 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & | | | | | |
| Concrete Finishing | 12,102 | 8,948 | 18,791 | 27,026 | 25,490 |
| Plasterers & Related | 6,222 | 4,669 | 9,270 | 10,042 | 10,535 |
| Inspecting, Testing, etc., | | | | | |
| Construction, except Electrical | | 449 | 1,617 | 3,879 | 4,395 |

Sources: Noah M. Meltz, *op. cit.*, pp. 66-69
 1961 *Census of Canada*, Vol. III, Part: 1 (3.1-3)
 Catalogue 94-503, Table 6
 1971 *Census of Canada*, Vol. III, (3.2-3)
 Catalogue 94-717, Table 2

a Excludes Armed Forces.

TABLE A.10
FEMALE LABOUR FORCE IN SELECTED OCCUPATIONS, CANADA,
1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a | 665,302 | 832,840 | 1,163,893 | 1,760,450 | 2,959,505 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 3,135 | 2,960 |
| <u>Professional</u> | | | | | |
| Architects | 2 | 16 | 43 | 66 | 115 |
| Engineers | | | | | |
| Chemical | | | 3 | 14 | 55 |
| Civil | | | | 29 | 220 |
| Electrical | | | 11 | 40 | 180 |
| Physicians & Surgeons | 203 | 384 | 660 | 1,452 | 2,890 |
| Dentists | 32 | 45 | 68 | 235 | 310 |
| Nurses, graduate | 20,462 | 26,473 | 34,270 | 59,201 | 104,350 |
| Optometrists | | | | 35 | 90 |
| Judges & Magistrates | 5 | 1 | 5 | 17 | 70 |
| Lawyers & Notaries | 54 | 129 | 197 | 309 | 780 |
| Physicists | | | | 26 | 40 |
| Biologists | | | | 269 | 715 |
| Economists | | | | 277 | 580 |
| Professors & Teachers | 64,968 | 64,742 | 75,131 | 120,960 | 191,185 |
| Professors | 259 | 277 | 812 | 2,366 | |
| Teachers | 64,709 | 64,465 | 74,319 | 118,594 | |
| Dieticians & Nutritionists | | | | 1,849 | 1,705 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 64,993 | 77,882 | 133,485 | 209,410 | 324,690 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 212 | 540 |
| Service Station Attendants | | | 227 | 539 | 1,320 |
| Insurance Salesmen & Agents | | | | 1,671 | 4,160 |
| Salesmen, securities | | | | 194 | 665 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 251 | 1,900 |
| Barbers & Hairdressers | 6,741 | 10,998 | 10,854 | 23,289 | 35,620 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | | | | | |
| Policemen & Detectives | 78 | 110 | 200 | 373 | 1,175 |

TABLE A.10 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | | 5 | 6 | 7 | 20 |
| Locomotive Engineers & Firemen | | | | | |
| Deck Officers, ship | | | | | |
| Engineering Officers, ship | | | | | |
| Engine & Boiler-Room Crew, ship | | | | | |
| Bus Drivers | | 6 | 72 | 528 | 3 050 |
| Taxi Drivers & Chauffeurs | | 63 | 275 | 394 | 900 |
| Subway & Street Railway Operators | | | 31 | | 25 |
| Telegraph Operators | 749 | 548 | 1 021 | 453 | 190 |
| Mail Carriers | 51 | 100 | 257 | 643 | 1 330 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 241 | 515 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | | | | 11 | 45 |
| Fish canning, curing & packing | | | | 4 561 | 6 890 |
| Metal Rolling | | | | | |
| Tool & Die Making | | | 14 | 47 | 140 |
| Motor Vehicle Mechanics & Repairmen | | | 129 | 149 | 905 |
| Radio & T.V. Service Repairmen | | | | 73 | 285 |
| Typesetters & Compositors | | | 732 | 1 003 | 1 630 |
| Power Station Operators | | | | | |
| Motion Picture Projectionists | 5 | 5 | 11 | 16 | 40 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | | | | 25 | 155 |
| Plasterers & Related | | | | | 30 |
| Inspecting, Testing, etc., | | | | | |
| Construction, except Electrical | | 449 | 1 617 | 3 879 | 4 395 |

Sources: Noah M. Meltz, *op. cit.*, pp. 70-73
 1961 *Census of Canada*, Volume III, Part 1 (3.1-3)
 Catalogue 94-503, Table 6.
 1971 *Census of Canada*, Volume III, (3.2-3)
 Catalogue 94-717, Table 2.

^a Excludes Armed Forces.

TABLE A.11

PERCENTAGE OF TOTAL LABOUR FORCE (MALES AND FEMALES COMBINED)
IN SELECTED OCCUPATIONS, CANADA,^a 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^b (Actual) | 3,917,612 | 4,195,951 | 5,214,913 | 6,342,289 | 8,541,340 |
| (Percent of Total) | 100 | 100 | 100 | 100 | 100 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 0.10 | 0.07 |
| <u>Professional</u> | | | | | |
| Architects | 0.03 | 0.03 | 0.03 | 0.05 | 0.05 |
| Engineers | | | | | |
| Chemical | | | 0.05 | 0.05 | 0.04 |
| Civil | | | 0.15 | 0.19 | 0.25 |
| Electrical | 0.10 | 0.11 | 0.12 | 0.14 | 0.18 |
| Physicians & Surgeons | 0.26 | 0.26 | 0.27 | 0.34 | 0.33 |
| Dentists | 0.10 | 0.09 | 0.09 | 0.09 | 0.08 |
| Nurses, graduate | 0.52 | 0.63 | 0.67 | 0.97 | 1.28 |
| Optometrists | | | | 0.02 | 0.02 |
| Judges & Magistrates | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Lawyers & Notaries | 0.21 | 0.19 | 0.17 | 0.19 | 0.19 |
| Physicists | | | | 0.01 | 0.01 |
| Biologists | | | | 0.03 | 0.03 |
| Economists | | | | 0.04 | 0.07 |
| Professors & Teachers | 2.20 | 2.16 | 2.09 | 2.82 | 3.83 |
| Professors | 0.08 | 0.10 | 0.10 | 0.18 | |
| Teachers | 2.12 | 2.06 | 1.99 | 2.64 | |
| Dieticians & Nutritionists | | | | 0.03 | 0.02 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 1.75 | 1.94 | 2.66 | 3.41 | 3.92 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 0.09 | 0.09 |
| Service Station Attendants | | | 0.15 | 0.32 | 0.36 |
| Insurance Salesmen & Agents | | | | 0.44 | 0.39 |
| Salesmen, securities | | | | 0.08 | 0.09 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 0.15 | 0.15 |
| Barbers & Hairdressers | 0.59 | 0.62 | 0.47 | 0.66 | 0.66 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | 0.12 | 0.12 | 0.17 | 0.22 | 0.21 |
| Policemen & Detectives | 0.28 | 0.38 | 0.38 | 0.47 | 0.50 |

TABLE A.11 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | 0.01 | 0.01 | 0.02 | 0.04 | 0.05 |
| Locomotive Engineers & Firemen | 0.35 | 0.29 | 0.32 | 0.18 | 0.09 |
| Deck Officers, ship | | | | 0.08 | 0.06 |
| Engineering Officers, ship | | | | 0.05 | 0.04 |
| Engine & Boiler-Room Crew, ship | | | | 0.03 | 0.02 |
| Bus Drivers | | 0.07 | 0.22 | 0.29 | 0.37 |
| Taxi Drivers & Chauffeurs | | 0.29 | 0.41 | 0.35 | 0.29 |
| Subway & Street Railway Operators | 0.22 | 0.16 | 0.12 | 0.02 | 0.01 |
| Telegraph Operators | 0.17 | 0.13 | 0.13 | 0.07 | 0.02 |
| Mail Carriers | 0.17 | 0.18 | 0.17 | 0.21 | 0.21 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 0.50 | 0.31 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | 0.04 | 0.06 | 0.04 | 0.04 | 0.04 |
| Fish canning, curing & packing | | | | 0.17 | 0.17 |
| Metal Rolling | 0.01 | 0.02 | 0.03 | 0.04 | 0.04 |
| Tool & Die Making | 0.07 | 0.17 | 0.18 | 0.17 | 0.12 |
| Motor Vehicle Mechanics & Repairmen | | | 1.23 | 1.40 | 1.31 |
| Radio & T.V. Service Repairmen | | | | 0.12 | 0.11 |
| Typesetters & Compositors | | | 0.29 | 0.26 | 0.15 |
| Power Station Operators | | 0.06 | 0.07 | 0.08 | 0.06 |
| Motion Picture Projectionists | 0.03 | 0.04 | 0.04 | 0.02 | 0.02 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | 0.31 | 0.21 | 0.36 | 0.43 | 0.30 |
| Plasterers & Related | 0.16 | 0.11 | 0.18 | 0.16 | 0.12 |
| Inspecting, Testing, etc., Construction, except Electrical | | 0.01 | 0.03 | 0.06 | 0.05 |

Source: Table A.8

^a Includes Yukon and Northwest Territories in 1971 only.^b Excludes Armed Forces.

TABLE A.12
PERCENTAGE OF MALE LABOUR FORCE IN SELECTED OCCUPATIONS,
CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a (Actual) | 3,252,310 | 3,363,111 | 4,051,020 | 4,581,839 | |
| (Percent of Total) | 100 | 100 | 100 | 100 | 100 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 0.06 | 0.05 |
| <u>Professional</u> | | | | | |
| Architects | 0.04 | 0.04 | 0.04 | 0.06 | 0.07 |
| Engineers | | | | | |
| Chemical | | | 0.06 | 0.07 | 0.06 |
| Civil | | | 0.19 | 0.26 | 0.38 |
| Electrical | 0.12 | 0.14 | 0.16 | 0.19 | 0.27 |
| Physicians & Surgeons | 0.30 | 0.31 | 0.34 | 0.43 | 0.46 |
| Dentists | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 |
| Nurses, graduate | | * | 0.02 | 0.05 | 0.09 |
| Optometrists | | | | 0.03 | 0.03 |
| Judges & Magistrates | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 |
| Lawyers & Notaries | 0.25 | 0.23 | 0.22 | 0.26 | 0.28 |
| Physicists | | | | 0.01 | 0.01 |
| Biologists | | | | 0.03 | 0.04 |
| Economists | | | | 0.04 | 0.09 |
| Professors & Teachers | 0.65 | 0.77 | 0.84 | 1.26 | 2.43 |
| Professors | 0.09 | 0.11 | 0.11 | 0.19 | |
| Teachers | 0.56 | 0.65 | 0.72 | 1.07 | |
| Dieticians & Nutritionists | | | | * | * |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 0.11 | 0.10 | 0.12 | 0.15 | 0.18 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 0.13 | 0.13 |
| Service Station Attendants | | | 0.19 | 0.43 | 0.52 |
| Insurance Salesmen & Agents | | | | 0.58 | 0.53 |
| Salesmen, securities | | | | 0.11 | 0.13 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 0.20 | 0.20 |
| Barbers & Hairdressers | 0.50 | 0.44 | 0.33 | 0.41 | 0.37 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | 0.14 | 0.15 | 0.22 | 0.31 | 0.32 |
| Policemen & Detectives | 0.34 | 0.47 | 0.49 | 0.65 | 0.74 |

TABLE A.12 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>, 1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|---------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | 0.01 | 0.02 | 0.03 | 0.06 | 0.07 |
| Locomotive Engineers & Firemen | 0.43 | 0.37 | 0.41 | 0.25 | 0.14 |
| Deck Officers, ship | | | | 0.11 | 0.09 |
| Engineering Officers, ship | | | | 0.07 | 0.05 |
| Engine & Boiler-Room Crew, ship | | | | 0.04 | 0.03 |
| Bus Drivers | | 0.09 | 0.28 | 0.39 | 0.51 |
| Taxi Drivers & Chauffeurs | | 0.37 | 0.52 | 0.47 | 0.43 |
| Subway & Street Railway Operators | 0.27 | 0.19 | 0.15 | 0.03 | 0.01 |
| Telegraph Operators | 0.19 | 0.14 | 0.14 | 0.09 | 0.03 |
| Mail Carriers | 0.21 | 0.22 | 0.22 | 0.28 | 0.29 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 0.69 | 0.47 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | 0.05 | 0.08 | 0.05 | 0.05 | 0.05 |
| Fish canning, curing & packing | | | | 0.13 | 0.14 |
| Metal Rolling | 0.01 | 0.03 | 0.04 | 0.05 | 0.05 |
| Tool & Die Making | 0.09 | 0.21 | 0.23 | 0.23 | 0.18 |
| Motor Vehicle Mechanics & Repairmen | | | 1.58 | 1.94 | 1.99 |
| Radio & T.V. Service Repairmen | | | | 0.17 | 0.17 |
| Typesetters & Compositors | | | 0.36 | 0.33 | 0.20 |
| Power Station Operators | | 0.07 | 0.10 | 0.11 | 0.09 |
| Motion Picture Projectionists | 0.04 | 0.05 | 0.05 | 0.03 | 0.03 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | 0.37 | 0.27 | 0.46 | 0.59 | 0.46 |
| Plasterers & Related | 0.19 | 0.14 | 0.23 | 0.22 | 0.19 |
| Inspecting, Testing, etc., Construction, except Electrical | | 0.01 | 0.04 | 0.08 | 0.08 |

Source: See Table A.9.

^a Excludes Armed Forces.

* Less than 0.005 percent.

TABLE A.13

PERCENTAGE OF FEMALE LABOUR FORCE IN SELECTED OCCUPATIONS,
CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a (Actual) | 665,302 | 832,840 | 1, 163,893 | 1,760,450 | 2,959,505 |
| (Percent of Total) | 100 | 100 | 100 | 100 | 100 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 0.18 | 0.10 |
| <u>Professional</u> | | | | | |
| Architects | * | * | * | * | * |
| Engineers | | | | | |
| Chemical | | | * | * | * |
| Civil | | | | * | 0.01 |
| Electrical | | | * | * | 0.01 |
| Physicians & Surgeons | 0.03 | 0.05 | 0.06 | 0.08 | 0.10 |
| Dentists | * | 0.01 | 0.01 | 0.01 | 0.01 |
| Nurses, graduate | 3.08 | 3.18 | 2.94 | 3.36 | 3.53 |
| Optometrists | | | | * | * |
| Judges & Magistrates | * | * | * | * | * |
| Lawyers & Notaries | 0.01 | 0.02 | 0.02 | 0.02 | 0.03 |
| Physicists | | | | * | * |
| Biologists | | | | 0.02 | 0.02 |
| Economists | | | | 0.02 | 0.03 |
| Professors & Teachers | 9.77 | 7.77 | 6.46 | 6.87 | 6.46 |
| Professors | 0.04 | 0.03 | 0.07 | 0.13 | |
| Teachers | 9.73 | 7.74 | 6.39 | 6.74 | |
| Dieticians & Nutritionists | | | | 0.11 | 0.06 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 9.77 | 9.35 | 11.47 | 11.90 | 10.97 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 0.01 | 0.02 |
| Service Station Attendants | | | 0.02 | 0.03 | 0.04 |
| Insurance Salesmen & Agents | | | | 0.09 | 0.14 |
| Salesmen, securities | | | | 0.01 | 0.02 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 0.02 | 0.06 |
| Barbers & Hairdressers | 1.01 | 1.32 | 0.93 | 1.32 | 1.20 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | | | | | |
| Policemen & Detectives | 0.01 | 0.01 | 0.02 | 0.02 | 0.04 |

TABLE A.13 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | | * | * | * | * |
| Locomotive Engineers & Firemen | | | | | |
| Deck Officers, ship | | | | | |
| Engineering Officers, ship | | | | | |
| Engine & Boiler-Room Crew, ship | | | | | |
| Bus Drivers | | * | 0.01 | 0.03 | 0.10 |
| Taxi Drivers & Chauffeurs | | 0.01 | 0.02 | 0.02 | 0.03 |
| Subway & Street Railway Operators | | | * | | * |
| Telegraph Operators | 0.11 | 0.07 | 0.09 | 0.03 | 0.01 |
| Mail Carriers | 0.01 | 0.01 | 0.02 | 0.04 | 0.04 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 0.01 | 0.02 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | | | | * | * |
| Fish canning, curing & packing | | | | 0.26 | 0.23 |
| Metal Rolling | | | | | |
| Tool & Die Making | | | * | * | * |
| Motor Vehicle Mechanics & Repairmen | | | 0.01 | 0.01 | 0.03 |
| Radio & T.V. Service Repairmen | | | | * | 0.01 |
| Typesetters & Compositors | | | 0.06 | 0.06 | 0.06 |
| Power Station Operators | | | | | |
| Motion Picture Projectionists | * | * | * | * | * |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | | | | | 0.01 |
| Plasterers & Related | | | | | * |
| Inspecting, Testing, etc., Construction, except Electrical | | | | | |

Source: See Table A.10.

^a Excludes Armed Forces.

* Less than 0.005 percent.

TABLE A.14

FEMALES IN SELECTED OCCUPATIONS AS A PERCENTAGE
OF EACH OCCUPATION, CANADA, 1931-1971

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| All Occupations ^a | 17.0 | 19.9 | 22.3 | 27.8 | 34.7 |
| <u>Managerial</u> | | | | | |
| Postmasters | | | | 51.5 | 51.8 |
| <u>Professional</u> | | | | | |
| Architects | 0.2 | 1.3 | 2.5 | 2.2 | 2.9 |
| Engineers | | | | | |
| Chemical | | | 0.1 | 0.5 | 1.6 |
| Civil | | | | 0.2 | 1.0 |
| Electrical | | | 0.2 | 0.5 | 1.2 |
| Physicians & Surgeons | 2.0 | 3.6 | 4.6 | 6.8 | 10.1 |
| Dentists | 0.8 | 1.2 | 1.5 | 4.3 | 4.8 |
| Nurses, graduate | 100.0 | 99.4 | 97.5 | 96.2 | 95.4 |
| Optometrists | | | | 2.9 | 5.9 |
| Judges & Magistrates | 0.9 | 0.2 | 0.8 | 2.1 | 5.5 |
| Lawyers & Notaries | 0.7 | 1.6 | 2.2 | 2.6 | 4.8 |
| Physicists | | | | 3.7 | 5.1 |
| Biologists | | | | 16.2 | 24.1 |
| Economists | | | | 12.0 | 10.3 |
| Professors & Teachers | 75.4 | 71.5 | 68.9 | 67.6 | 58.5 |
| Professors | 8.1 | 6.7 | 15.0 | 21.2 | |
| Teachers | 78.0 | 74.6 | 21.7 | 70.7 | |
| Dieticians & Nutritionists | | | | 96.6 | 95.3 |
| <u>Clerical</u> | | | | | |
| Secretaries, Stenographers & Typists | 94.9 | 95.9 | 96.4 | 96.8 | 96.9 |
| <u>Commercial & Financial</u> | | | | | |
| Newsboys | | | | 3.6 | 7.1 |
| Service Station Attendants | | | 2.9 | 2.7 | 4.3 |
| Insurance Salesmen & Agents | | | | 6.0 | 12.4 |
| Salesmen, securities | | | | 3.6 | 8.5 |
| <u>Service</u> | | | | | |
| Personal | | | | | |
| Bartenders | | | | 2.7 | 14.5 |
| Barbers & Hairdressers | 29.2 | 42.5 | 44.5 | 55.3 | 63.2 |
| Protective & Other | | | | | |
| Fire-fighting Occupations | | | | | |
| Policemen & Detectives | 0.7 | 0.7 | 1.0 | 1.2 | 2.8 |

TABLE A.14 (continued)

| | <u>1931</u> | <u>1941</u> | <u>1951</u> | <u>1961</u> | <u>1971</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| <u>Transportation & Communication</u> | | | | | |
| Air Pilots, Navigators & Flight Engineers | | 0.9 | 0.5 | 0.3 | 0.5 |
| Locomotive Engineers & Firemen | | | | | |
| Deck Officers, ship | | | | | |
| Engineering Officers, ship | | | | | |
| Engine & Boiler-Room Crew, ship | | | | | |
| Bus Drivers | | 0.2 | 0.6 | 2.8 | 9.7 |
| Taxi Drivers & Chauffeurs | | 0.5 | 1.3 | 1.8 | 3.6 |
| Subway & Street Railway Operators | | | 0.5 | | 3.6 |
| Telegraph Operators | 11.0 | 10.2 | 15.4 | 10.4 | 11.6 |
| Mail Carriers | 0.8 | 1.4 | 2.8 | 4.8 | 7.6 |
| <u>Fishing, Hunting, Trapping</u> | | | | | |
| Fishermen | | | | 0.8 | 1.9 |
| <u>Manufacturing & Mechanical</u> | | | | | |
| Flour & Grain Milling | | | | 0.5 | 1.5 |
| Fish canning, curing & packing | | | | 42.7 | 47.5 |
| Metal Rolling | | | | | |
| Tool & Die Making | | | 0.2 | 0.4 | 1.4 |
| Motor Vehicle Mechanics & Repairmen | | | 0.2 | 0.2 | 0.8 |
| Radio & T.V. Service Repairmen | | | | 1.0 | 2.9 |
| Typesetters & Compositors | | | 4.8 | 6.2 | 12.7 |
| Power Station Operators | | | | | |
| Motion Picture Projectionists | 0.4 | 0.3 | 0.6 | 1.2 | 2.7 |
| <u>Construction</u> | | | | | |
| Brick & Stone Masons & Concrete Finishing | | | | | 0.6 |
| Plasterers & Related | | | | | 0.3 |
| Inspecting, Testing, etc., Construction, except Electrical | | | | | |

Sources: See Tables A.8 and A.10.

^a Excludes Armed Forces.

TABLE A.15

INTERDECADE PERCENTAGE CHANGES IN THE PROPORTION
OF SELECTED OCCUPATIONS IN THE LABOUR FORCE (MALES AND FEMALES COMBINED)

| | <u>1931-41</u> | <u>1941-51</u> | <u>1951-61</u> | <u>1961-71</u> |
|--------------------------------------|----------------|----------------|----------------|----------------|
| <u>Managerial</u> | | | | |
| Postmasters | | | | -30 |
| <u>Professional</u> | | | | |
| Architects | -12 | 14 | 39 | 2 |
| Engineers | | | | |
| Chemical | | | - 4 | -13 |
| Civil | | | 27 | 32 |
| Electrical | 10 | 9 | 17 | 29 |
| Physicians & Surgeons | 0 | 4 | 26 | - 3 |
| Dentists | -14 | - 1 | - 2 | -13 |
| Nurses, graduate | 21 | 6 | 45 | 32 |
| Optometrists | | | | - 5 |
| Judges & Magistrates | -21 | 0 | 18 | 15 |
| Lawyers & Notaries | -10 | -11 | 12 | 0 |
| Physicists | | | | -18 |
| Biologists | | | | 35 |
| Economists | | | | 83 |
| Professors & Teachers | - 2 | - 3 | 35 | 36 |
| Professors | 21 | 5 | 73 | |
| Teachers | -3 | - 3 | 33 | |
| Dieticians & Nutritionists | | | | -30 |
| <u>Clerical</u> | | | | |
| Secretaries, Stenographers & Typists | 11 | 37 | 28 | 15 |
| <u>Commercial & Financial</u> | | | | |
| Newsboys | | | | - 4 |
| Service Station Attendants | | | 113 | 13 |
| Insurance Salesmen & Agents | | | | 11 |
| Salesmen, securities | | | | 8 |
| <u>Service</u> | | | | |
| Personal | | | | |
| Bartenders | | | | 0 |
| Barbers & Hairdressers | 5 | -24 | 40 | 0 |
| Protective & Other | | | | |
| Fire-fighting Occupations | 0 | 42 | 29 | - 5 |
| Policemen & Detectives | 36 | 0 | 24 | 6 |

TABLE A.15 (continued)

| | <u>1931-41</u> | <u>1941-51</u> | <u>1951-61</u> | <u>1961-71</u> |
|--|----------------|----------------|----------------|----------------|
| <u>Transportation & Communication</u> | | | | |
| Air Pilots, Navigators & Flight Engineers | 56 | 57 | 91 | 17 |
| Locomotive Engineers & Firemen | -17 | 10 | -44 | -50 |
| Deck Officers, ship | | | | -28 |
| Engineering Officers, ship | | | | -25 |
| Engine & Boiler-Room Crew, ship | | | | -36 |
| Bus Drivers | | 210 | 32 | 28 |
| Taxi Drivers & Chauffeurs | | 41 | -15 | -17 |
| Subway & Street Railway Operators | -27 | -25 | -83 | -62 |
| Telegraph Operators | -24 | 0 | -46 | -72 |
| Mail Carriers | 6 | - 6 | 24 | 0 |
| <u>Fishing, Hunting, Trapping</u> | | | | |
| Fishermen | | | | -38 |
| <u>Manufacturing & Mechanical</u> | | | | |
| Four & Grain Milling | 45 | -34 | -13 | 3 |
| Fish canning, curing & packing | | | | 0 |
| Metal Rolling | 75 | 57 | 9 | - 3 |
| Tool & Die Making | 133 | 6 | - 6 | -29 |
| Motor Vehicle Mechanics & Repairmen | | | 14 | - 6 |
| Radio & T.V. Service Repairmen | | | | - 8 |
| Typesetters & Compositors | | | -10 | -42 |
| Power Station Operators | | 36 | 4 | -28 |
| Motion Picture Projectionists | 6 | 0 | -41 | -23 |
| <u>Construction</u> | | | | |
| Brick & Stone Masons & Concrete Finishing | -32 | 71 | 19 | -30 |
| Plasterers & Related | -31 | 64 | -11 | -25 |
| Inspecting, Testing, etc., Construction, except Electrical | | 182 | 97 | -16 |

Source: Table A.11.

Note: Where the percentage of labour force was less than .10 the inter-decade changes were calculated from percentages taken to three decimal places.

TABLE A.16

AVERAGE ANNUAL EARNINGS FOR SELF-EMPLOYED IN SELECTED OCCUPATIONS,
FOR MALES AND FEMALES COMBINED,^a CANADA, 1961-1971

| | 1961 | 1971 |
|---|-----------|--------|
| | (dollars) | |
| All Occupations ^b | 5,523 | 5,963 |
| <u>Managerial</u> | | |
| Postmasters | | |
| <u>Professional</u> | | |
| Architects | 12,545 | 17,407 |
| Engineers | | |
| Chemical | | 12,059 |
| Civil | 12,745 | 14,271 |
| Electrical | | 12,059 |
| Physicians & Surgeons | 17,673 | 32,317 |
| Dentists | 13,132 | 22,537 |
| Nurses, graduate | 2,277 | 4,074 |
| Optometrists | 9,430 | 17,630 |
| Judges & Magistrates | | |
| Lawyers & Notaries | 12,550 | 23,536 |
| Physicists | | |
| Biologists | | |
| Economists | | 12,139 |
| Professors & Teachers | 1,433 | 4,367 |
| Professors | | |
| Teachers | | |
| Dieticians & Nutritionists | | |
| <u>Clerical</u> | | |
| Secretaries, Stenographers & Typists | 2,611 | 4,220 |
| <u>Commercial & Financial</u> | | |
| Newsboys | 2,387 | |
| Service Station Attendants | | |
| Insurance Salesmen & Agents | 6,052 | 9,375 |
| Salesmen, securities | 6,487 | 7,228 |
| <u>Service</u> | | |
| Personal | | |
| Bartenders | | |
| Barbers & Hairdressers | 3,025 | 3,980 |
| Protective & Other | | |
| Fire-fighting Occupations | | |
| Policemen & Detectives | | 5,431 |

TABLE A.16 (continued)

| | 1961 | 1971 |
|---|-----------|--------|
| | (dollars) | |
| <u>Transportation & Communication</u> | | |
| Air Pilots, Navigators & Flight Engineers | | 20,074 |
| Locomotive Engineers & Firemen | | 12,073 |
| Deck Officers, ship | | |
| Engineering Officers, ship | | |
| Engine & Boiler-Room Crew, ship | | |
| Bus Drivers | 5,831 | 6,004 |
| Taxi Drivers & Chauffeurs | 3,214 | 4,697 |
| Subway & Street Railway Operators | | |
| Telegraph Operators | | |
| Mail Carriers | | 5,967 |
| <u>Fishing, Hunting, Trapping</u> | | |
| Fishermen | 1,902 | 3,452 |
| <u>Manufacturing & Mechanical</u> | | |
| Flour & Grain Milling | | 5,531 |
| Fish canning, curing & packing | | 4,847 |
| Metal Rolling | | |
| Tool & Die Making | | 6,543 |
| Motor Vehicle Mechanics & Repairmen | 3,895 | 5,639 |
| Radio & T.V. Service Repairmen | 3,502 | 4,954 |
| Typesetters & Compositors | 4,934 | 6,879 |
| Power Station Operators | | |
| Motion Picture Projectionists | | 4,415 |
| <u>Construction</u> | | |
| Brick & Stone Masons & Concrete Finishing | 3,893 | 6,221 |
| Plasterers & Related | 3,535 | 6,298 |
| Inspecting, Testing, etc., Construction, except Electrical | | |

Sources: 1961 *Census of Canada*, Vol. IV, Pt. 1, No. 98-502, Tables B4 and B5.
 1971 *Census of Canada*, Vol. III, Pt. 6, No. 94-765, Table 16.

a For some occupations earnings data were available only for males or females but not both because earnings were not shown when there were fewer than 250 persons. In these cases the combined earnings will be the same as the figure for males or for females depending on which group had sufficient numbers to be published.

b Excludes Armed Forces.

TABLE A.17
MALE AND FEMALE COMBINED^a LABOUR FORCE FOR SELF-EMPLOYED
IN SELECTED OCCUPATIONS, CANADA, 1961-1971

| | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|
| All Occupations ^b | 488,675 | 668,850 |
| <u>Managerial</u> | | |
| Postmasters | | |
| <u>Professional</u> | | |
| Architects | 932 | 1,555 |
| Engineers | | |
| Chemical | | 35 |
| Civil | 689 | |
| Electrical | | 640 |
| Physicians & Surgeons | 12,410 | 14,640 |
| Dentists | 4,626 | 4,825 |
| Nurses, graduate | 1,990 | 765 |
| Optometrists | 969 | 1,080 |
| Judges & Magistrates | | |
| Lawyers & Notaries | 7,963 | 8,945 |
| Physicists | | |
| Biologists | | 35 |
| Economists | | 150 |
| Professors & Teachers | 730 | 1,240 |
| Professors | | |
| Teachers | | |
| Dieticians & Nutritionists | | 15 |
| <u>Clerical</u> | | |
| Secretaries, Stenographers & Typists | 287 | 945 |
| <u>Commercial & Financial</u> | | |
| Newsboys | 377 | |
| Service Station Attendants | | |
| Insurance Salesmen & Agents | 3,443 | 1,770 |
| Salesmen, securities | 447 | 305 |
| <u>Service</u> | | |
| Personal | | |
| Bartenders | | |
| Barbers & Hairdressers | 19,467 | 20,745 |
| Protective & Other | | |
| Fire-fighting Occupations | | |
| Policemen & Detectives | | 60 |

TABLE A.17 (continued)

| | <u>1961</u> | <u>1971</u> |
|---|-------------|-------------|
| <u>Transportation & Communication</u> | | |
| Air Pilots, Navigators & Flight Engineers | | 50 |
| Locomotive Engineers & Firemen | | |
| Deck Officers, ship | | 155 |
| Engineering Officers, ship | | 35 |
| Engine & Boiler-Room Crew, ship | | |
| Bus Drivers | 647 | 1,935 |
| Taxi Drivers & Chauffeurs | 7,821 | 6,530 |
| Subway & Street Railway Operators | | |
| Telegraph Operators | | |
| Mail Carriers | | 570 |
| <u>Fishing, Hunting, Trapping</u> | | |
| Fishermen | 17,695 | 14,240 |
| <u>Manufacturing & Mechanical</u> | | |
| Flour & Grain Milling | | 155 |
| Fish canning, curing & packing | | 80 |
| Metal Rolling | | 5 |
| Tool & Die Making | | 100 |
| Motor Vehicle Mechanics & Repairmen | 9,589 | 11,025 |
| Radio & T.V. Service Repairmen | 2,584 | 2,855 |
| Typesetters & Compositors | 557 | 320 |
| Power Station Operators | | |
| Motion Picture Projectionists | | 45 |
| <u>Construction</u> | | |
| Brick & Stone Masons & Concrete Finishing | 3,073 | 2,645 |
| Plasterers & Related | 1,806 | 1,600 |
| Inspecting, Testing, etc., | | 10 |
| Construction, except Electrical | | |

Sources: 1961 *Census of Canada*, (Bulletin 4.1-2) Catalogue 98-502, Tables B4 and B5.
1971 *Census of Canada*, Vol. III, Part 2 (Bulletin 3.2-9), Catalogue 94-723, Table 8.

^a Occupations with less than 50 males or females not shown separately.

^b Excludes Armed Forces.

TABLE A.18
AVERAGE ANNUAL EMPLOYMENT INCOME,^a SELECTED OCCUPATIONS,
MALES AND FEMALES COMBINED, CANADA, 1950-1975

| Occupation | 1950/51 | 1960/61 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 |
|--|--------------------|---------|--------|--------|--------|--------|--------|--------|
| (dollars) | | | | | | | | |
| SELF EMPLOYED | | | | | | | | |
| Doctors & surgeons | 8,404 | 15,365 | 33,644 | 38,508 | 38,951 | 40,394 | 41,407 | 43,267 |
| Lawyers & notaries | 7,972 | 13,060 | 24,611 | 25,378 | 27,698 | 33,091 | 37,157 | 35,726 |
| Dentists | 5,251 | 11,339 | 21,625 | 23,846 | 26,630 | 29,166 | 32,337 | 38,007 |
| Engineers & architects | 9,039 | 12,650 | 19,650 | 19,044 | 21,801 | 30,169 | 30,171 | 30,810 |
| Accountants | 6,849 ^b | 10,157 | 17,257 | 16,897 | 17,737 | 24,017 | 26,742 | 30,704 |
| Entertainers & artists ^c | 2,711 | 4,805 | 5,067 | 4,306 | 4,638 | 5,605 | 5,771 | 5,023 |
| Other professionals ^d | 2,322 | 4,517 | 7,472 | 8,334 | 9,693 | 9,882 | 11,135 | 11,435 |
| Total professionals | 5,895 | 10,162 | 19,568 | 21,116 | 22,447 | 24,299 | 25,963 | 27,328 |
| Farmers | 1,704 | 2,202 | 2,256 | 2,728 | 3,754 | 5,913 | 7,756 | 8,691 |
| Fishermen | 2,732 | 2,559 | 3,942 | 3,847 | 4,361 | 5,494 | 4,955 | 4,497 |
| Salesmen | 3,629 | 4,746 | 5,629 | 6,430 | 7,573 | 8,210 | 9,798 | 8,832 |
| Business proprietors | 3,067 | 3,562 | 4,836 | 5,111 | 5,703 | 6,564 | 7,508 | 6,964 |
| EMPLOYEES | | | | | | | | |
| Teachers & professors ^e | 2,345 | 4,056 | 7,726 | 8,345 | 9,082 | 10,029 | 11,398 | 12,645 |
| Federal government | 2,392 | 3,772 | 6,826 | 7,010 | 7,686 | 8,461 | 9,498 | 11,014 |
| Provincial governments | 2,236 | 3,496 | 6,299 | 6,665 | 7,330 | 8,035 | 9,098 | 10,575 |
| Municipal governments | 2,469 | 3,769 | 6,165 | 6,415 | 6,982 | 7,550 | 8,511 | 9,878 |
| Business enterprises | 2,317 | 3,427 | 5,457 | 5,836 | 6,373 | 7,017 | 7,886 | 9,024 |
| Institutions | 1,710 | 2,427 | 4,499 | 4,857 | 5,205 | 5,689 | 6,589 | 7,758 |
| AVERAGE EMPLOYMENT INCOME ^f | 2,380 | 3,474 | 5,529 | 5,918 | 6,612 | 7,213 | 8,156 | 9,299 |

Source: Revenue Canada, *Taxation Statistics*, published annually.

^a See Chapter III for a discussion of the income categories included for each occupation.

^b Accountants included in "other professionals" prior to 1951; figure is for 1951.

^c Artists added after 1950/51.

^d Includes osteopaths, chiropractors, nurses which were reported separately in 1950/51.

^e Reported as "employees of educational institutions" in 1950/51.

^f Excludes persons whose major income source was other than employment (i.e., investments, pensions, unclassified), but non-taxable returns are included for each occupation.

TABLE A.19

RELATIVE TOTAL INCOMES (BEFORE-TAX), SELECTED OCCUPATIONS, CANADA, 1946-1975

| Year | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | Average Income (\$) |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-------|---------------------------|
| 1946 | 365 | 319 | 259 | 293 | n/a | 115 | 104 | 115 | 170 | 163 | 89 | 89 | 89 | 90 | 93 | 92 | 73 | 2,044 |
| 1947 | 325 | 332 | 242 | 316 | n/a | 116 | 111 | 129 | 163 | 170 | 88 | 89 | 90 | 90 | 91 | 91 | 70 | 2,358 |
| 1948 | 329 | 331 | 215 | 297 | n/a | 128 | 111 | 133 | 159 | 163 | 89 | 90 | 88 | 93 | 92 | 69 | 2,513 | |
| 1949 | 313 | 331 | 200 | 362 | n/a | 113 | 132 | 131 | 149 | 172 | 88 | 89 | 87 | 91 | 91 | 69 | 2,881 | |
| 1950 | 334 | 325 | 209 | 370 | n/a | 106 | 125 | 129 | 151 | 159 | 89 | 88 | 88 | 91 | 91 | 69 | 2,962 | |
| 1951 | 317 | 324 | 200 | 306 | 259 | 107 | 119 | 137 | 153 | 151 | 90 | 91 | 88 | 93 | 92 | 67 | 3,149 | |
| 1952 | 320 | 280 | 216 | 373 | 244 | 137 | 121 | 114 | 140 | 156 | 92 | 92 | 92 | 90 | 95 | 93 | 67 | 3,288 |
| 1953 | 333 | 294 | 221 | 304 | 339 | 126 | 114 | 109 | 138 | 151 | 93 | 90 | 90 | 90 | 95 | 94 | 66 | 3,383 |
| 1954 | 346 | 347 | 230 | 351 | 253 | n/a | 103 | 121 | 134 | 145 | 95 | 95 | 95 | 90 | 96 | 93 | 67 | 3,504 |
| 1955 | 344 | 346 | 242 | 396 | 263 | n/a | 98 | 102 | 138 | 144 | 96 | 93 | 91 | 95 | 94 | 66 | 3,535 | |
| 1956 | 355 | 344 | 251 | 371 | 271 | n/a | 98 | 120 | 141 | 143 | 95 | 93 | 91 | 95 | 95 | 67 | 3,673 | |
| 1957 | 365 | 345 | 267 | 380 | 284 | n/a | 98 | 98 | 140 | 137 | 96 | 95 | 92 | 95 | 96 | 67 | 3,834 | |
| 1958 | 381 | 329 | 266 | 356 | 265 | n/a | 100 | 124 | 134 | 136 | 99 | 96 | 96 | 92 | 96 | 95 | 65 | 4,007 |
| 1959 | 383 | 343 | 282 | 364 | 268 | 152 | 101 | 107 | 135 | 131 | 100 | 96 | 92 | 98 | 96 | 65 | 4,113 | |
| 1960 | 386 | 345 | 289 | 370 | 270 | 140 | 134 | 97 | 89 | 131 | 125 | 105 | 98 | 93 | 99 | 96 | 67 | 4,232 |
| 1961 | 391 | 361 | 284 | 338 | 267 | 135 | 125 | 99 | 99 | 134 | 121 | 105 | 101 | 94 | 98 | 96 | 68 | 4,348 |
| 1962 | 409 | 346 | 309 | 328 | 252 | 133 | 134 | 101 | 118 | 135 | 122 | 105 | 100 | 97 | 100 | 96 | 68 | 4,436 |
| 1963 | 427 | 358 | 301 | 329 | 242 | 132 | 135 | 101 | 110 | 138 | 120 | 107 | 106 | 98 | 101 | 96 | 68 | 4,550 |
| 1964 | 452 | 364 | 314 | 354 | 274 | 125 | 122 | 104 | 106 | 142 | 120 | 107 | 103 | 97 | 100 | 96 | 71 | 4,749 |
| 1965 | 470 | 388 | 317 | 390 | 272 | 125 | 121 | 104 | 111 | 143 | 121 | 107 | 103 | 100 | 100 | 96 | 72 | 4,947 |
| 1966 | 481 | 405 | 331 | 408 | 269 | 125 | 132 | 100 | 105 | 130 | 118 | 111 | 108 | 100 | 100 | 97 | 73 | 5,193 |
| 1967 | 502 | 404 | 336 | 406 | 267 | 114 | 141 | 102 | 88 | 130 | 115 | 115 | 107 | 102 | 102 | 98 | 74 | 5,445 |
| 1968 | 506 | 409 | 350 | 394 | 295 | 106 | 146 | 91 | 92 | 127 | 112 | 119 | 112 | 105 | 103 | 99 | 75 | 5,765 |
| 1969 | 530 | 424 | 357 | 371 | 296 | 100 | 145 | 84 | 83 | 125 | 108 | 122 | 119 | 107 | 105 | 99 | 77 | 6,099 |
| 1970 | 539 | 415 | 354 | 347 | 299 | 100 | 142 | 82 | 83 | 116 | 103 | 128 | 121 | 110 | 108 | 99 | 82 | 6,447 |
| 1971 | 547 | 385 | 357 | 299 | 257 | 93 | 150 | 83 | 80 | 121 | 103 | 125 | 115 | 107 | 104 | 99 | 81 | 7,237 |
| 1972 | 529 | 393 | 364 | 327 | 260 | 86 | 163 | 89 | 83 | 128 | 105 | 126 | 115 | 108 | 105 | 99 | 81 | 7,784 |
| 1973 | 493 | 422 | 360 | 390 | 312 | 97 | 154 | 110 | 101 | 125 | 108 | 126 | 112 | 107 | 104 | 98 | 80 | 8,665 |
| 1974 | 444 | 425 | 354 | 340 | 306 | 91 | 151 | 129 | 81 | 129 | 109 | 125 | 110 | 106 | 103 | 97 | 81 | 10,038 |
| 1975 | 399 | 365 | 349 | 371 | 296 | 92 | 154 | 138 | 69 | 121 | 110 | 122 | 111 | 108 | 106 | 99 | 85 | 11,696 |

Source: Revenue Canada, *Taxation Statistics*, annual, Summary Table 3.

Occupation Key:

A Doctors & surgeons
 B Lawyers & notaries
 C Dentists
 D Engineers & Architects
 E Accountants
 F Entertainers & artists
 G Other professionals

Self-employed

H Farmers
 I Fishermen
 J Salesmen
 K Business proprietors

Employees

L Teachers & professors
 M Federal government
 N Provincial governments
 O Municipal governments
 Q Institutions

TABLE A.20

RELATIVE AFTER-TAX ^a INCOMES, SELECTED OCCUPATIONS, CANADA, 1950-1975

| OCCUPATION | 1950 | 1955 | 1960 | 1965 | 1970 | 1975 |
|------------------------------|-----------|-------|-------|-------|-------|--------|
| | (dollars) | | | | | |
| SELF-EMPLOYED | | | | | | |
| Doctors & surgeons | 294 | 299 | 330 | 399 | 428 | 327 |
| Lawyers & notaries | 279 | 294 | 290 | 332 | 343 | 297 |
| Dentists | 200 | 224 | 258 | 283 | 302 | 285 |
| Engineers & architects | 306 | 328 | 309 | 304 | 307 | 306 |
| Accountants | n/a | 236 | 240 | 247 | 265 | 255 |
| Entertainers & artists | 106 | | 135 | 122 | 99 | 92 |
| Other professionals | 176 | 147 | 128 | 118 | 133 | 141 |
| Farmers | 125 | 100 | 99 | 104 | 85 | 132 |
| Fishermen | 128 | 103 | 91 | 109 | 86 | 70 |
| Salesmen | 148 | 134 | 130 | 140 | 117 | 118 |
| Business proprietors | | 138 | 122 | 119 | 104 | 107 |
| EMPLOYEES | | | | | | |
| Teachers & professors | 91 | 96 | 105 | 109 | 126 | 119 |
| Federal government | 91 | 95 | 99 | 104 | 120 | 108 |
| Provincial government | 90 | 93 | 95 | 101 | 110 | 105 |
| Municipal governments | 95 | 98 | 101 | 102 | 109 | 104 |
| Business enterprises | 93 | 95 | 97 | 97 | 99 | 97 |
| Institutions | 71 | 67 | 69 | 73 | 83 | 85 |
| AVERAGE AFTER-TAX INCOME(\$) | 2,714 | 3,212 | 3,826 | 4,444 | 5,463 | 10,141 |

Source: Revenue Canada, *Taxation Statistics*, published annually.^a Total income from all sources less federal and provincial income taxes.

TABLE A.21

NUMBER OF PERSONS IN SELECTED OCCUPATIONS, CANADA, 1950/51 to 1975

| | 1950/51 | 1960/61 | 1970 | 1975 |
|-------------------------------------|-----------|-----------|-----------|------------|
| SELF EMPLOYED | | | | |
| Doctors & surgeons | 9,585 | 14,852 | 19,504 | 26,988 |
| Lawyers & notaries | 5,370 | 7,486 | 9,554 | 12,307 |
| Dentists | 4,260 | 4,804 | 5,747 | 6,004 |
| Engineers & architects | 1,915 | 2,533 | 2,709 | 3,221 |
| Accountants ^b | 2,220 | 4,630 | 5,150 | 7,553 |
| Entertainers & artists ^c | 2,385 | 4,112 | 9,144 | 13,391 |
| Other professionals ^d | 8,855 | 11,709 | 15,730 | 25,114 |
| Total professionals | 33,480 | 50,125 | 67,538 | 94,578 |
| Farmers | 193,105 | 209,420 | 276,686 | 279,247 |
| Fishermen | 7,420 | 8,837 | 17,238 | 21,391 |
| Salesmen | 38,145 | 66,343 | 27,149 | 34,154 |
| Business proprietors | 261,560 | 322,585 | 362,021 | 413,319 |
| EMPLOYEES | | | | |
| Teachers & professors ^e | 72,525 | 154,438 | 347,489 | 322,272 |
| Federal government | 143,415 | 225,636 | 291,750 | 356,997 |
| Provincial governments | 101,950 | 194,569 | 367,911 | 475,414 |
| Municipal governments | 84,845 | 174,668 | 332,143 | 450,920 |
| Business enterprises | 2,767,545 | 3,896,445 | 5,413,630 | 6,442,314 |
| Institutions | 75,710 | 231,524 | 581,508 | 697,494 |
| Total ^f | 3,854,725 | 5,620,281 | 8,252,914 | 12,002,400 |

Source: Revenue Canada, *Taxation Statistics*, published annually.

Notes: See Table A.18.

TABLE A.22

NUMBER OF PERSONS IN SELECTED OCCUPATIONS AS PERCENTAGE OF TOTAL

PERSONS IN ALL OCCUPATIONS, CANADA, 1950/51 to 1975

| | Percentage in Each Occupation | | | | Percentage Change in Relative Numbers | | |
|-------------------------------------|-------------------------------|---------|-------|-------|--|---------|------|
| | 1950/51 | 1960/61 | 1970 | 1975 | 1950/51 | 1960/61 | 1970 |
| | | | | | to | to | to |
| | 1950/51 | 1960/61 | 1970 | 1975 | 1960/61 | 1970 | 1975 |
| SELF-EMPLOYED | | | | | | | |
| Doctors & surgeons | .249 | .264 | .236 | .273 | 6 | -11 | 12 |
| Lawyers & notaries | .139 | .133 | .116 | .124 | - 4 | -13 | 7 |
| Dentists | .111 | .085 | .070 | .061 | -23 | -18 | -13 |
| Engineers & architects | .050 | .045 | .033 | .033 | -10 | -27 | 0 |
| Accountants ^b | .058 | .082 | .062 | .076 | 41 | -24 | 23 |
| Entertainers & artists ^c | .062 | .073 | .111 | .135 | 18 | 52 | 22 |
| Other professionals ^d | .230 | .208 | .191 | .254 | -10 | - 8 | 33 |
| Total professionals | .87 | .89 | .82 | .96 | 2 | - 8 | 17 |
| Farmers | 5.01 | 3.73 | 3.35 | 2.82 | -26 | -10 | -16 |
| Fishermen | .192 | .157 | .209 | .216 | -18 | 33 | 3 |
| Salesmen | .99 | 1.18 | .33 | .35 | 19 | -72 | 6 |
| Business proprietors | 6.79 | 5.73 | 4.39 | 4.18 | -16 | -23 | - 5 |
| EMPLOYEES | | | | | | | |
| Teachers & professors ^e | 1.88 | 2.75 | 4.21 | 3.26 | 46 | 53 | -23 |
| Federal government | 3.72 | 4.01 | 3.54 | 3.61 | 8 | -14 | 2 |
| Provincial governments | 2.64 | 3.46 | 4.46 | 4.81 | 31 | 29 | 8 |
| Municipal governments | 2.20 | 3.11 | 4.02 | 4.56 | 14 | 29 | 13 |
| Business enterprises | 71.80 | 69.33 | 65.60 | 65.17 | - 3 | - 5 | - 1 |
| Institutions | 1.96 | 4.11 | 7.05 | 7.06 | 110 | 72 | 0 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Source: Table A.21.

Notes: See Table A.18.

TABLE A.23
AVERAGE EARNINGS^m FOR BROAD OCCUPATION GROUPS, CANADA, 1965-1971

| Occupation | Males | | | | Females | | | |
|---------------------------------|-----------|-------|--------|--------|---------|-------|-------|-------|
| | 1965 | 1967 | 1969 | 1971 | 1965 | 1967 | 1969 | 1971 |
| | (dollars) | | | | | | | |
| Total Labour Force ^c | n/a | n/a | 6,147 | 7,008 | n/a | n/a | 2,815 | 3,360 |
| Managerial | 7,501 | 8,594 | 9,873 | 10,711 | 2,987 | 3,530 | 4,262 | 4,941 |
| Professional | 7,133 | 8,604 | 9,622 | 11,095 | 3,549 | 4,248 | 5,012 | 6,120 |
| Clerical | 4,255 | 5,025 | 5,495 | 6,504 | 2,617 | 3,118 | 3,352 | 3,859 |
| Sales | 4,682 | 5,374 | 6,071 | 6,755 | 1,477 | 1,782 | 1,841 | 2,262 |
| Service | 3,462 | 4,168 | 5,104 | 5,326 | 1,278 | 1,633 | 1,890 | 2,163 |
| Transportation | 4,536 | 5,131 | 5,941 | 6,775 | b | 2,835 | b | 3,333 |
| Farmers, etc. | 2,634 | 2,982 | 3,407 | 3,609 | b | b | b | b |
| Miners, craftsmen | 4,682 | 5,427 | 6,181 | 7,171 | 2,027 | 2,527 | 2,841 | 3,223 |
| Labourers | 2,900 | 3,406 | 3,778 | 4,306 | b | b | b | b |
| Full-year workers ^d | 5,629 | 6,218 | 7,459 | 8,455 | 3,069 | 3,433 | 4,120 | 4,648 |
| Managerial | 7,920 | 8,784 | 10,125 | 11,128 | 3,351 | 3,732 | 4,909 | 5,366 |
| Professional | 7,602 | 9,222 | 10,495 | 12,104 | 4,226 | 4,928 | 5,809 | 7,276 |
| Clerical | 4,713 | 5,548 | 6,391 | 7,226 | 3,263 | 3,623 | 4,120 | 4,610 |
| Sales | 5,287 | 6,096 | 7,059 | 7,896 | 2,077 | 2,292 | 2,648 | 2,947 |
| Service | 4,120 | 4,741 | 5,540 | 6,379 | 2,099 | 2,147 | 2,588 | 3,000 |
| Transportation | 5,121 | 5,575 | 6,834 | 7,571 | b | 3,495 | b | 4,672 |
| Farmers, etc. | 3,261 | 3,080 | 3,730 | 3,819 | b | b | b | b |
| Miners, craftsmen | 5,290 | 5,916 | 6,924 | 8,077 | 2,756 | 2,988 | 3,633 | 3,966 |
| Labourers | 4,117 | 3,476 | 5,296 | 6,111 | b | b | b | b |

Source: Statistics Canada, *Income Distribution by Size in Canada*, various years.

n/a Not available

a Earnings include wages and salaries and net income from self-employment.

b Sample size too small.

c Worked at least one week in year.

d Worked 50-52 weeks.

TABLE A.24
AVERAGE EARNINGS^a FOR BROAD OCCUPATION GROUPS, CANADA, 1972-1975

| Occupation | Males | | | | Females | | | |
|---------------------------------|-----------|--------|--------|--------|---------|-------|-------|--------|
| | 1972 | 1973 | 1974 | 1975 | 1972 | 1973 | 1974 | 1975 |
| | (dollars) | | | | | | | |
| Total Labour Force ^b | 6,712 | 8,460 | 9,463 | 10,888 | 3,501 | 3,943 | 4,456 | 5,236 |
| Managerial | 12,807 | 14,346 | 16,225 | 17,850 | 6,161 | 7,576 | 8,237 | 9,891 |
| Professional | 10,922 | 12,299 | 13,044 | 15,154 | 6,037 | 6,413 | 7,178 | 8,123 |
| Clerical | 6,775 | 7,374 | 8,400 | 9,455 | 4,056 | 4,531 | 5,150 | 5,852 |
| Sales | 8,477 | 9,205 | 10,897 | 12,056 | 2,747 | 2,967 | 4,160 | 4,130 |
| Service | 6,275 | 6,506 | 7,405 | 8,336 | 2,157 | 2,454 | 2,962 | 3,301 |
| Farming, etc. | 4,320 | 5,798 | 7,214 | 7,946 | d | 1,951 | d | 2,839 |
| Processing, Mach. | 7,788 | 8,382 | 9,270 | 10,287 | 4,244 | 3,867 | 4,485 | 5,238 |
| Product Fabrication | 7,598 | 8,301 | 9,426 | 10,586 | 3,381 | 3,751 | 4,307 | 4,870 |
| Construction | 7,894 | 8,785 | 9,809 | 11,110 | d | d | d | d |
| Transport | 7,399 | 8,144 | 9,491 | 10,385 | 3,326 | 3,746 | 4,389 | 4,987 |
| Full-year workers ^c | 9,223 | 10,072 | 11,613 | 13,188 | 5,051 | 5,527 | 6,421 | 7,266 |
| Managerial | 13,384 | 14,731 | 16,809 | 18,747 | 6,908 | 8,335 | 9,015 | 10,805 |
| Professional | 12,405 | 13,500 | 14,643 | 16,772 | 7,220 | 7,770 | 8,923 | 9,952 |
| Clerical | 7,769 | 8,483 | 9,661 | 11,045 | 4,962 | 5,584 | 6,253 | 7,157 |
| Sales | 9,567 | 10,187 | 12,063 | 13,758 | 3,771 | 3,942 | 5,638 | 5,545 |
| Service | 7,507 | 7,796 | 8,923 | 10,136 | 2,926 | 3,368 | 4,182 | 4,711 |
| Farming, etc. | 4,722 | 6,175 | 7,804 | 8,946 | d | 2,662 | d | 4,148 |
| Processing, Mach. | 8,859 | 9,463 | 10,654 | 11,928 | 6,291 | 5,065 | 5,986 | 7,270 |
| Product Fabr. | 8,453 | 9,261 | 10,638 | 12,007 | 4,415 | 4,453 | 5,310 | 6,060 |
| Construction | 9,581 | 10,577 | 11,850 | 13,483 | d | d | d | d |
| Transport | 8,695 | 9,382 | 11,067 | 12,174 | 4,662 | 5,094 | 5,589 | 6,660 |

Source: Statistics Canada, *Income Distribution, by Size in Canada*, (Catalogue 13-207) various years.

- a Earnings include wages and salaries and net income from self-employment.
b Worked at least one week in year.
c Worked 50-52 weeks
d Sample size too small.

TABLE A.25
RELATIVE DEMAND - SUPPLY CHANGE ANALYSES
BY OCCUPATION BY DECADE 1931 to 1971

| Occupations | 1931-41 | 1941-51 | 1951-61 | 1961-71 |
|-----------------------------------|-------------------|-----------------------------|-------------------|-------------------|
| <u>Managerial</u> Postmasters | | | | **S- |
| <u>Professional</u> Architects | **D- | **S+ | ** (D+=S+) *D+ | ** D+=S-) *D+ |
| Engineers Chemical | | | ** (D+=S-) S- | **D- |
| Civil | | | **D+ | ** (D-=S+) *S+ |
| Electrical | ** (D+=S+) *S+ | ** (D-=S+) *S+ | **D+ | **S+ |
| Physicians & Surgeons | ** (D-=S+) | ** (D-=S+) S+ | ** (D+=S+) S+ | ** (D+=S-) S- |
| Dentists | ** (D-=S-) D- | ** (E=0) (D-=S-) | ** (D-=S+) D- | **S- |
| Nurses, graduate | **S+ | ** (D+=S-) *D+ | ** (D+=S+) *S+ | ** (D+=S+) *D+ |
| Optometrists | | | | ** (D+=S-) *S- |
| Judges & Magistrates | ** (D-=S-) *D- | N/A | N/A | **D+ |
| Lawyers & Notaries | **D- | **D- | ** (D+=S+) *D+ | ** (D+=S-) |
| Physicists | | | | ** (D-=S-) *D- |
| Biologists | | | | **S+ |
| Economists | | | | ** (D+=S+) *S+ |
| Professors & Teachers | ** (D-=S+) D- | ** (E=0) * (D-=S+) D- | **D+ | ** (D+=S+) D+ |
| Dieticians & Nutritionists | | | | **S- |

TABLE A.25 (continued)

| Occupations | 1931-41 | 1941-51 | 1951-61 | 1961-71 |
|---|-----------------------|-------------------|-------------------|-------------------------------------|
| <u>Clerical</u> | | | | |
| Secretaries, Stenographers & Typists | **S+ | ** (D+=S+) *D+ | ** (D+=S+) *S+ | **S+ |
| <u>Commercial and Financial</u> | | | | |
| Newsboys | | | **S+ | ** (E=0) * (D+=S-) S- **S+ |
| Service Station Attendants | | | | |
| Insurance Salesmen & Agents | | | | ** (D-=S-) *D- |
| Salesmen, securities | | | | ** (E=0) *S+ |
| <u>Service-Personal</u> | | | | |
| Bartenders | | | | ** (D-=S+) |
| Barbers & Hairdressers | ** (D-=S+) *S+ | **S- | **S+ | ** (D-=S+) |
| <u>Service - Protective & Other</u> | | | | |
| Fire-fighting Occupations | ** (E=0) * (D-=S+) | **S+ | ** (D+=S+) | ** (D-=S-) *S- |
| Policemen & Detectives | **S+ | ** (D-=S+) | ** (D+=S+) D+ | ** (D+=S+) *D+ |
| <u>Transportation & Communication</u> | | | | |
| Air Pilots, Navigators & Flight Engineers | *D+ | **S+ | **D+ | ** (D+=S+) S+ |
| Locomotive Engineers | ** (D-=S-) S- | **S+ | ** (D-=S-) D- | ** (D+=S-) D- ** (D-=S-) |
| Deck Officers, ship | | | | *S- **S- |
| Engineering Officers, ship | | | | |
| Engine & Boiler-Room Crew, ship | | | | ** (D-=S-) *S- |
| Bus Drivers | | ** (D+=S+) *S+ | **S+ | ** (D+=S+) *S+ |
| Taxi Drivers & Chauffeurs | | ** (D+=S+) *D+ | **D- | ** (D-=S-) D- |

TABLE A.25 (continued)

| Occupations | 1931-41 | 1941-51 | 1951-61 | 1961-71 |
|---------------------------------------|---------------|-------------------|----------------------|----------------------|
| Subway & Street Railway Operators | ** (D=S-) D- | **D- | ** (D=S-) *S- | ** (D=S-) *S- |
| Telegraph Operators | ** (D=S-) S- | ** (D=S+) | **D- | ** (D=S-) S- |
| Mail Carriers | ** (D=S+) *S+ | ** (E=0) *D=S- D- | ** (D+S+) *S+ | ** (E=0) |
| <u>Fishing, Hunting, Trapping</u> | | | | |
| Fishermen | | | | **S- |
| <u>Manufacturing & Mechanical</u> | | | | |
| Flour & Grain Milling | **S+ | ** (D=S-) D- | *D- | ** (E=0) * (D+S-) D+ |
| Fish canning, curing & packing | | | | ** (D=S+) |
| Metal Rolling | **D+ | **S+ | ** (E=0) * (D+S+) D+ | ** (E=0) * (D=S-) D- |
| Tool & Die Making | **D+ | ** (D=S+) *S+ | ** (E=0) *D- | ** (D=S) *S- |
| Motor Vehicle Mechanics & Repairmen | | | ** (D+S+) *S+ | ** (E=0) *S- |
| Radio & T.V. Service Repairmen | | | | ** (E=0) * (D=S-) |
| Typesetters & Compositors | | | ** (D=S-) D- | ** (D=S-) *D- |
| Power Station Operators | | **S+ | ** (E=0) * (D+S-) D+ | **S- |
| Motion Picture Projectionists | ** (D=S+) *S+ | ** (D=S+) | **D- | ** (D=S-) S- |

TABLE A.25 (continued)

| Occupations | 1931-41 | 1941-51 | 1951-61 | 1961-71 |
|--|------------------|---------|------------|------------|
| <u>Construction</u> | | | | |
| Brick & Stone Masons & Concrete Finishing | ** (D-=S-) D- | **D+ | **S+ | **S- |
| Plasterers & Lathers | **D- | **D+ | **D- | **S- |
| Inspecting, Testing, etc., | | **S+ | ** (D+=S+) | ** (D-=S-) |
| Construction, except electrical | | | S+ | |

Source: See Chapter III.

N/A not available

Note: The level at which one factor is dominant is indicated as follows:

- ** 10 per cent
- * 5 per cent
- 1 per cent

APPENDIX B

ESTABLISHING COMPARABLE OCCUPATIONS FOR HISTORICAL COMPARISONS OF CENSUS DATA ON EARNINGS AND OTHER VARIABLES¹

Concept and Classification of Occupations

For most classification purposes, an occupation is defined as a "kind of work".² Every classification has certain objectives which influence the way in which occupations are defined.

"At least four different purposes for classifying occupations can be cited: 1) classification of statistics derived from labour force inquiries, particularly population censuses, that is counting people; 2) determination of different job characteristics for employment placement and career guidance; 3) assessing the relationship between education and training and

¹ We would like to acknowledge the assistance of Mrs. Amy Kempster, head of the Economic Characteristics Section, Census Division Statistics Canada, and M. Gilles Montigny, a member of her staff. They provided us with the two-way conversion microfilm and many very helpful suggestions. We are also indebted to Wayne Lewchuk for research assistance in making the occupational conversions.

² Noah M. Meltz (1968).

occupations and 4) establishment of a basis for wage and salary payment." ¹

In Canada, beginning with the 1931 census, there has been a new classification manual with each decennial population census. These manuals have used occupation titles as the basic level. Thousands of titles are identified and each title is assigned to a particular occupation class (termed a "unit group" in 1971). These classes in turn are grouped into divisions. Table B.1 shows the three basic levels of aggregation (four in 1971) and the numbers in each level in the past five censuses. Although decennial censuses have always defined an occupation as a kind of work, the final packaging of occupational titles into occupational classes (the smallest grouping for purposes of counting) has changed with each census. One reason for the change is the continual introduction of new technology which creates new occupations, makes some occupations obsolete, and upgrades or downgrades the skills and work functions involved in still others. The introduction of computers, for example, has resulted in a whole range of new occupations which did not exist 20 years ago. ²

Special Problems in Comparing the 1971 Census Occupation Classification with Earlier Occupation Classifications

Prior to the 1971 census, the manual which was prepared for each census was used only to count

¹ *Ibid*

² Examples of occupations associated with the introduction of computers are: computer programmers and systems analysts.

people. Other classifications were used for placement work in Canada Manpower Centres¹ and the measurement of wage and salary rates.² In the mid 1960's, it was decided to develop a single occupational classification manual for Canada which could be used both for counting people in the census and the Labour Force Survey as well as for placement work in the Canada Manpower Centres,³ and so develop a classification which could be used by all the federal government agencies. The result was the *Canadian Classification and Dictionary of Occupations 1971 (CCDO)*.⁴ The CCDO occupational titles and code numbers were used as a framework for the census *Occupational Classification*

¹ Various issues of the United States *Dictionary of Occupational Titles* were used by Canada Manpower Centres until 1973.

² In 1968, Labour Canada began to change some of their occupations from volume II to volume III of the *Dictionary of Occupation Titles*. Since 1973, the Survey has been based on the CCDO definitions and job titles.

³ The Labour Force Survey has always used the census occupation classification. After each census a new occupation classification was introduced in the Labour Force Survey with one year of overlapping tabulations between the old and new classifications. The most recent year of overlapping classification was 1973.

⁴ Department of Manpower and Immigration, *Canadian Classification and Dictionary of Occupations, 1971, Volume 1 Classification and Definitions*, Ottawa: Information Canada, 1971.

*Manual (OCM)*¹ with 25,000 occupation titles distributed among the CCDO's 486 unit groups.²

In preparing the CCDO with its combination of objectives, a major break occurred in the historical continuity of census occupational classifications. In the 1961 census, 158 of the 273 occupation classes were comparable with 1951 census classes.³ In the 1971 classification, only nine of 486 classes are comparable with particular classes in 1961. The task was to examine the 1971 classification manual to see whether the list of comparable classes could be increased. Since data have already been prepared on over a 100 occupations from 1931 to 1961,⁴ all of the occupations which could be made comparable with this list would automatically be comparable to the data prepared back to 1931.

Not only were the number of classes increased but some major conceptual changes took place as

¹ Statistics Canada, *Occupational Classification Manual, Census Canada, 1971*, Volume 2, Catalogue No. 12-538, Occasional (Ottawa: Information Canada, 1971).

² There are some differences between the OCM and the CCDO. As the OCM points out " ..a few additional groups have been provided at the various levels and a few have been deleted" (p.8). For a detailed comparison see: *Classification Discrepancies between the 1971 OCM and CCDO*, prepared for the Seminar on Occupational Research, Statistics Canada, Ottawa, March, 1976.

³ Noah M. Meltz (1968).

⁴ *Ibid.*

well. For example, the 1961 census contained a separate major group, labourers (excluding those engaged in primary occupations). In 1971, there is no separate group of labourers. Instead, each relevant minor group contains a unit group "Occupations in Labouring and other Elemental Work".

Statistics Canada is undertaking a recoding on the 1961 occupation classification basis of a sample of 109,500 census returns.¹ Totals for Canada and the provinces will be estimated from this sample. At the time of preparing this report, the data are still being processed. The recoding will provide a comprehensive basis for a comparison of the 1961 and 1971 occupation data. The results, however, will not produce a complete set of data at the detailed level. Only numbers of persons by sex will be shown in detail and there are no plans at present to release data except for the larger classes, that is, approximately 5,000 persons or more. Income will be tabulated for the 14 major occupation groups as will other characteristics.

¹ Further information on the recoding can be obtained from Mrs. Amy Kempster, head of the Economic Characteristics Section, Census Characteristics Division, Statistics Canada.

Methods Used to Identify Occupations Which are Comparable between the 1971 and 1961 Classifications

The following procedures were followed to determine the comparability of occupation.¹ Statistics Canada provided a microfilm showing the 1961 occupation titles distributed among 1971 occupation classes and a summary of the regrouping of 1961 classes on a 1971 basis showing the frequency distribution of the titles. A similar regrouping of the 1971 titles on the 1961 basis was prepared.

Since 1971 earnings data are to be compared with those of earlier censuses, the 1971 titles were regrouped on the basis of the 1961 classification. Conversion involves taking the occupation titles which are common to each classification, adding some titles and subtracting others. For example, Table B.2 shows the process required to convert "electrical engineers" on a 1971 classification basis (code 2144) to that of 1961 (code 105). The 1971 classification for "electrical engineers" contained two titles which would not have been in the "electrical engineering" category in 1961. The title "acoustical engineer" would have been in code 109, "professional engineers", while the title "corrosion engineer" would have been in code 108, "chemical engineers". As part of making the occupation "electrical engineer" comparable between 1971 and 1961, these two titles have to be subtracted from the 1971 group.

¹ For a discussion and tables on the comparability of major occupational groups in the 1961 and 1971 census classifications, see Statistics Canada, *The Labour Force*, August 1973 Cat. No. 71-001, September 1973, pp. 63-73.

While 59 of the 1961 occupational titles for "electrical engineers" were comparable with those in 1971, there were two titles in 1961 which were not in the 1971 occupation "electrical engineers": "supervisor of engineering service - radio and T.V. broadcasting", and "station engineer - radio and T.V. broadcasting". To make the classes comparable, these titles have to be added back in. Table B.2 shows the full list of occupation titles under "electrical engineers", both in the 1971 code 2144 and in the 1961 code 105.

With the exception of the nine occupations which were precisely comparable in terms of titles between the two years, all others required additions and/or subtractions of titles. In order to determine whether the classes are comparable after these regroupings one should examine the numbers and characteristics (sex, age, earnings, etc.) of persons referred to by the titles which were added to or subtracted from the core of common titles. Unfortunately, such data are not available since no information was tabulated in terms of individual occupation titles.

An alternative method was used to determine whether the numbers and characteristics of persons in the titles which move from one occupation class to another would significantly alter the averages shown in the 1971 class(es) to which the majority of titles belong.

Occupations were selected in which only a small number of occupation titles moved in or out (swing titles), and an attempt was made to determine the number and characteristics of these swing titles. Occupations were listed in which the swing titles (that is, additions plus subtractions) amounted to no more than 20 per

cent of the titles which remained in the occupation classification. As this list included some occupations in which there were too many uncertainties, the final list was based primarily on a maximum swing percentage of 10 per cent.

On the basis of the list, various professional, management and union groups were consulted to determine whether the swing titles would alter the averages of the various characteristics shown in the classes to which the majority of titles belonged (that is, at least 90 per cent of the titles).¹ Some occupations were dropped from the comparability list as a result of this process.

Since the objective of this exercise is to provide a wide range of comparable occupations, a few occupations were added which required the grouping of several occupational classes in order to provide comparability.

The list of 52 comparable occupations² is shown in Table B.3 while Table B.4 contains the details of the conversion process for each occupation. During the course of the study, the Ministry of State for Science and Technology (MOSST) expressed an interest in this attempt to increase the number of occupations for which historical data could be compared. The Ministry used the results of this work and their own to compile a list of

¹Mr. Wayne Lewchuk conducted the consultations and prepared background notes.

²The number 52 is based on 1961 classes. In terms of 1971 classes the number is larger since several are grouped together.

historically comparable occupations. This latter list is virtually the same as Table B.3. MOSST excluded teachers and nurses but included veterinarians. Computer programmers were also excluded from our list because of the small number in the occupation in 1961. In the final analysis, it should be noted that this work is only exploratory. A more precise guide to comparable groups will probably be prepared by the Economic Characteristics group, Census Characteristics Division of Statistics Canada.

TABLE B.1
NUMBER OF SEPARATE GROUPINGS AT LEVELS OF
AGGREGATION IN CENSUS OCCUPATIONAL CLASSIFICATIONS

| Census Manuals | Occupation Groups or Divisions | Occupation Classes | Occupation Titles |
|----------------|--------------------------------------|-----------------------|----------------------|
| 1971 Census | 22 ^a | 486 | 25,000 |
| 1961 Census | 13 | 273 ^b | 16,000 |
| 1951 Census | 16 | 280 | 14,000 |
| 1941 Census | 14 | 212 | 11,000 |
| 1931 Census | 30 | 398 | 12,000 |

Source: Noah M. Meltz, *Manpower in Canada, 1931-1961*, p.4. and *Occupational Classification Manual*, 1971 Census, Vol. 1, pp. 7 and 9.

^a In the 1971 census a further 81 minor groups were classified.

^b In the 1961 census publications there are 59 additional sub-divisions obtained by computer assignment of owners and managers n.e.s., foremen n.e.s., and labourers n.e.s., to more specific classes according to industry.

Transmission Engineer - Elec.

Power; Tel. & Teleg.

Wire Communications Engineer -

Any Ind.

Sources: See text for discussion of classification conversions. Lists of titles are from the *Occupational Classification Manual* for each census.

TABLE B.2
OCCUPATIONAL CLASSIFICATION CONVERSIONS, 1971 TO 1961 BASIS,
WITH ELECTRICAL ENGINEERS AS EXAMPLE

| | | | | | To | From |
|-------------|--|-------------|---|--|-------------|-------------|
| 1961 | | 1971 | | | 1961 | 1971 |
| <u>Code</u> | <u>Title</u> | <u>Code</u> | <u>Subtract</u> | <u>Add</u> | <u>Code</u> | <u>Code</u> |
| 105 | Electrical Engineers (59 titles comparable) | 2144 | Acoustical Engineers Any Inc. Corrosion Engineers Any Ind. | | 109 | |
| | | | | Supervisor of Engineers - Radio & T.V. Broadcasting | 9550 | |
| | | | | Station Engineer - Radio & T.V. Broadcasting | 9550 | |

COMPLETE LIST OF OCCUPATIONAL TITLES
INCLUDED UNDER ELECTRICAL ENGINEERS

| <u>1961 Census</u> | | <u>1971 Census</u> | |
|--------------------|---|--------------------|--|
| 105 | Electrical Engineers | 2144 | Electrical Engineers |
| | Appraisal Engineer - Elec. Power; Tel. & Teleg. | (1961)109 | Acoustical Engineer - Any Ind. |
| | Audio Engineer - Engin & Scien. Ser. | | Appraisal Engineer - Elec. Power; Tel. and Teleg. |
| | Cable Engineer - Tel. & Teleg. | | Audio Engineer - Engin. & Scien. Ser. |
| | Chief Engineer - Elec. Power; Tel. & Teleg. | | Cable Engineer - Tel. & Teleg. |
| | Chief Engineer - Radio & TV Broad. | | Chief Engineer - Elec. Power; Tel. and Teleg. |
| | Circuit Design Engineer - Elec. Power | | Chief Engineer - Radio & T.V. Broad. |
| | Commercial Engineer - Radio & T.V. Broad.; Tel. & Teleg. | | Circuit Design Engineer - Elec. Power |
| | Communications Consultant - Elec. Power; Tel. & Teleg. | | Commercial Engineer - Radio and T.V. Broad; Tel. and Teleg. |
| | Consulting Electrical Engineer - Any Ind. | | Communications Consultant - Elec. Power; Tel. and Teleg. |
| | Design Engineer - Elec. Mach. Mfg. | | New Conseiller en Communications - Tel. & Teleg. |
| | Design Engineer - Elec. Power; Tel. & Teleg. | | New Conseiller Ingenieur Electrique - Toute Ind. |
| | Design Engineer - Radio & T.V. Broad | (1961)108 | Corrosion Engineer - Any Ind. |
| | | | Design Engineer - Elec. Equip. Mfg. |

TABLE B.2 (continued)

| <u>1961 Census</u> | <u>1971 Census</u> |
|---|---|
| Dial Equipment Engineer - Elec. Power; Tel. & Teleg. | Design Engineer - Elec. Power; Tel. and Teleg. |
| Distribution Engineer - Elec. Power | Design Engineer - Radio & T.V. Broad. |
| District Plant Engineer - Tel. Systems | Dial Equipment Engineer - Elec. Power; Tel. and Teleg. |
| Division Plant Engineer - Tel. Systems | Distribution Engineer - Elec. Power |
| Electrical Engineer - Any Ind. | District Plant Engineer - Tel. Systems |
| Electrical Expert - Any Ind. | Division Plant Engineer - Tel. Systems |
| Electrolog Operator - Petrol. & Gas Wells | Electrical Engineer - Any Ind. |
| Electrolysis Engineer - Any Ind. | Electrical Expert - Any Ind. |
| Electronics Engineer - Any Ind. | Electrolysis Engineer - Any Ind. |
| Electrophonic Engineer - Any Ind. | Electronics Engineer - Any Ind. |
| Engineer/Prof./ - Radio & T.V. Broad. | Electrophonic Engineer - Any Ind. |
| Engineer/Prof./ - Tel. & Teleg. | Engineer (Prof.) - Radio & T.V. Broad. |
| Equipment Engineer - Elec. Power; Tel. & Teleg. | Engineer (Prof.) - Tel. & Teleg. |
| Facilities Engineer - Elec. Power; Tel. & Teleg. | Equipment Engineer - Elec. Power; Tel. and Teleg. |
| Field Engineer - Elec. Power; Tel. & Teleg. | Facilities Engineer - Elec. Power; Tel. and Teleg. |
| Illuminating Engineer - Any Ind. | Field Engineer - Elec. Power; Tel. and Teleg. |
| Illumination Engineer - Any Ind. | Illuminating Engineer - Any Ind. |
| Lighting Engineer - Any Ind. | Illumination Engineer - Any Ind. |
| Lighting Expert - Any Ind. | New Ingenieur Electricien (Diplome) - Toute Ind. |
| Line Construction Engineer - Elec. Power; Tel. & Teleg. | Lighting Engineer - Any Ind. |
| Maintenance Engineer - Elec. Power | Lighting Expert - Any Ind. |
| Meter Engineer - Elec. Power | Line Construction Engineer - Elec. Power; Tel. and Teleg. |
| | Maintenance Engineer - Elec. Power |
| | Meter Engineer - Elec. Power |
| | Outside Plant Engineer - Tel. Systems |
| | Planning Engineer - Elec. Power |

TABLE B.2 (continued)

| <u>1961 Census</u> | <u>1971 Census</u> |
|---|---|
| Outside Plant Engineer - Tel. Systems | Plant Engineer - Elec. Power; Tel. and Teleg. |
| Planning Engineer - Elec. Power | Power Plant Engineer (Elec. Engineer) - Any Ind. |
| Plant Engineer - Elec. Power; Tel. & Teleg. | Powerhouse Engineer (Elec. Engineer) - Any Ind. |
| Power Plant Engineer -/Elec. Engineer/ - Any Ind. | Radar Engineer - Any Ind. |
| Powerhouse Engineer/Elec. Engineer/ - Any Ind. | Radio and Television Engineer (Prof. Eng.) - Any Ind. |
| Radar Engineer - Any Ind. | Radio Engineer (Prof.) - Any Ind. |
| Radio and Television Engineer /Prof. Eng./ - Any Ind. | Radio Interference Expert - Any Ind. |
| Radio Engineer/Prof./ - Any Ind. | Relay Engineer - Elec. Power |
| Radio Interference Expert - Any Ind. | Results Engineer - Elec. Power |
| Relay Engineer - Elec. Power | Rural Electrification Engineer - Elec. Power |
| Results Engineer - Elec. Power | Service Engineer - Elec. Power |
| Rural Electrification Engineer - Elec. Power | Service Engineer - Electrical Prod. Ind. |
| Service Engineer - Elec. Power | Signal Engineer - Any Ind. |
| Service Engineer - Electrical Prod. Ind. | Sound Engineer - Any Ind. |
| Signal Engineer - Any Ind. | Telegraph Engineer - Any Ind. |
| Sound Engineer - Any Ind. | Telephone Engineer (Prof. Eng.) - Any Ind. |
| (1971)9555 Station Engineer - Radio and TV Broad. | Television Engineer (Prof.) - Any Ind. |
| (1971)9950 Supervisor of Engineering Services - Radio & T.V. Broad. | Testing Engineer - Elec. Eng. Co. |
| Telegraph Engineer - Any Ind. | Traffic Circuit Engineer - Tel. Systems |
| Telephone Engineer/Prof. Eng./ - Any Ind. | Transmission Engineer - Elec. Power; Tel. and Teleg. |
| Television Engineer/Prof./ - Any Ind. | Wire Communications Engineer - Any Ind. |
| Testing Engineer - Elec. Engineering Co. | |
| Traffic Circuit Engineer - Tel. Systems | |

1961 Census

Transmission Engineer - Elec.
Power; Tel. & Teleg.
Wire Communications Engineer -
Any Ind.

1971 Census

Sources: See text for discussion of classification conversions. List of titles are from the Occupational Classification Manual for each census.

TABLE B.3

OCCUPATIONS WHICH ARE REASONABLY COMPARABLE BETWEEN
THE 1971 AND 1961 CENSUSES

| Occupation Title | Code Number | |
|--|--------------------------------------|-------------|
| | 1971 Census | 1961 Census |
| <u>Managerial</u> | | |
| Postmasters | 1115 | 007 |
| <u>Professional</u> | | |
| Architects | 2141 | 181 |
| Engineers - | | |
| Chemical | 2142 | 108 |
| Civil | 2143 | 101 |
| Electrical | 2144 | 105 |
| *Physicists | 2113 | 114 |
| *Biologists and Related Scientists | 2133 | 121 |
| Physicians and Surgeons | 3111 | 140 |
| Dentists | 3113 | 141 |
| Nurses, Graduate | 3130, 3131 | 142 |
| Nurses-in-Training | 3133 | 143 |
| *Optometrists | 3153 | 145 |
| Judges and Magistrates | 2341 | 151 |
| Lawyers and Notaries | 2343 | 153 |
| *Economists | 2311 | 186 |
| *Systems Analysts, Computer Programmers | 2183 | 187 |
| *Dieticians and Nutritionists | 3152 | 191 |
| Professors and Teachers | 1133, 2711, 2719 2731, 2733, 2739 | 131, 135 |
| <u>Clerical</u> | | |
| (Secretaries and Stenographers | 4111 | 232 |
| (Typists and Clerk-Typists | 4113 | 234 |
| <u>Commercial and Financial</u> | | |
| *Newsboys | 5143 | 316 |
| Service Station Attendants | 5145 | 323 |
| *Insurance Salesmen and Agents | 5171 | 331 |
| *Salesmen and Traders, Securities | 5173 | 336 |
| <u>Service</u> | | |
| Personal - | | |
| * Bartenders | 6123 | 414 |
| Barbers, Hairdressers and Related Occupations | 6143 | 451 |

TABLE B.3 (continued)

| Occupation Title | Code Number | |
|---|--------------------|-------------|
| | 1971 Census | 1961 Census |
| Protective and Other - Fire-Fighting Occupations Policemen and Detectives | 6111 6112, 6113 | 401 403 |
| <u>Transportation and Communication</u> | | |
| Air Pilots, Navigators and Flight Engineers | 9111 | 520 |
| Locomotive Engineers and Firemen | 9131 | 531, 532 |
| Deck Officers | 9151 | 541 |
| Engineering Officers, Ship | 9153 | 543 |
| Engine and Boiler-Room Crew, Ship | 9157 | 547 |
| Bus Drivers | 9171 | 551 |
| Taxi Drivers and Chauffeurs | 9173 | 552 |
| Subway and Street Railway Operating Occupations | 9191 | 561 |
| Telegraph Operators | 9553 | 585 |
| Mail Carriers | 4172 | 587 |
| <u>Agricultural</u> | | 601-609 |
| Farmers (Employers or Own Account) | 7112 | 601 |
| <u>Fishing, Hunting, Trapping</u> | | 631-633 |
| Fishermen | 7311, 7313, 7319 | 631 |
| <u>Manufacturing and Mechanical</u> | | |
| Flour and Grain Milling Occupations | 8211 | 701 |
| *Fish Canning, Curing and Packing Occupations | 8217 | 705 |
| Metal Rolling Occupations | 8135 | 783 |
| Tool and Die Making Occupations | 8311 | 801 |
| Motor Vehicle Mechanics and Repairmen | 8581 | 822 |
| *Radio and Television Service Repairmen | 8537 | 835 |
| Typesetters and Compositors | 9511 | 771 |
| Power Station Operators | 9531 | 833 |
| *Motion Picture Projectionists | 9557 | 836 |
| <u>Construction</u> | | |
| Brick and Stone Masons | 8782 | 854 |
| Concrete Finishing and Related Occupations | 8783 | 855 |

TABLE B.3 (continued)

| Occupation Title | Code Number | |
|---|-------------|-------------|
| | 1971 Census | 1961 Census |
| Plasterers and Related Occupations | 8784 | 856 |
| Inspecting, Testing, Grading and Sampling | 8796 | 852 |
| Occupations, Construction, Except Electrical | | |

* Not comparable with 1951 and earlier censuses.

TABLE B.4
CONVERSION OF SELECTED 1971 CENSUS OCCUPATIONS TO A 1961
CLASSIFICATION BASIS

| 1961 | | 1971 | | | To | From |
|------|--|------|-------------------------------------|--|-----------|--------------------------------------|
| Code | Title | Code | Subtract | Add | 1961 Code | 1971 Code |
| 007 | Postmasters (3 titles comparable) | 1115 | | | | |
| 101 | Civil Engineers (68 titles comparable) | 2143 | Public Health Engineer | | 109 | |
| | | | Travelling Engineer, Rail Trains | | 010 | |
| | | | | City Planning Engineer, Local Admin. Urban Planner, Prof. & Kin. | | 2159 2159 |
| 105 | Electrical Engineers (59 titles comparable) | 2144 | Acoustical Engineers | | 109 | |
| | | | Any Ind. | | | |
| | | | Corrosion Engineers | | 108 | |
| | | | | Supervisor of Engineers - Radio & T.V. Broadcasting Station Engineer - Radio & T.V. Broadcasting | | 9550 9555 |
| 108 | Chemical Engineers (15 titles comparable) | 2142 | Fuels Engr., Any Ind. | | 102 | |
| | | | | Atomic Process Engr., Any Ind. Ceramic Engr., Any Ind. Research Mgr., Petro Refineries Mud Engr., Petro Refineries Corrosion Engr., Any Ind. | | 2157 2159 1131 2154 2144 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|--|--|------|---|---|--|
| Code | Title | Code | Subtract | Add | Code |
| 114 | Physicists (14 titles comparable) | | | Electronics Consultant, Any Ind. Optical Instrument Specialist, Any Ind. | 2119 2119 |
| 121 | Biologists and Related Scientists (57 titles comparable) | 2133 | Fish Culturist, Officer, Any Ind. Fish Culturist, Any Ind. Ichthyologist, Any Ind. Oyster Culturist, Any Ind. | Chemotherapist, Any Ind. Demonstrator, Biology, Ex. Agric. Zoo Director, Any Ind. | 3119 2139 1131 |
| 124 | Veterinarians (7 titles comparable) | 3115 | | Veterinary Inspector, Gov. Ser. | 1116 |
| Note: This occupation is not included in the list of comparable classes because of the large numbers of Veterinary Inspectors relative to Veterinarians. | | | | | |
| 131 | Professors (3 titles comparable) | 2711 | | | |
| | | 2719 | Technician, Univ. | | 198 |
| 135 | Teachers (8 titles comparable) | 2739 | Teaching Consultants. | | 139 |
| | | | Correcteur d'examens Etudes Prim., Secon. Manager - Barber College Teacher - Barber College Beauty School | 451 451 | 451 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|------------|------------------------|-------------------|------------------------------|------|------|
| Code Title | | Code Subtract Add | | 1961 | 1971 |
| | | | | Code | Code |
| | | | I.B.M. Mechanic Teacher | 139 | |
| | | | Teacher N.S. | | 2793 |
| | | | (Normal Sch.) | | |
| | | | Teacher N.S. | | |
| | | | (Teachers Training | | 2793 |
| | | | College) | | |
| | | | Visual Education | | |
| | | | Director (Voc. Sch.) | | 2799 |
| | | | Tutor - any except | | |
| | | | Univ. or College | | 2799 |
| | | | Instructor - Corresp. | | |
| | | | School | | 2799 |
| | | | Audio Visual Specialist | | 2799 |
| 135 | Elementary & Kinder- | 2731 | | | |
| | garten Teachers | | | | |
| | (18 titles comparable) | | | | |
| 135/ | Secondary School | 2733 | | | |
| 139 | Teachers | | | | |
| | (17 titles comparable) | | | | |
| 131/ | Administrators | 1133 | Health Education Director | | 192 |
| 135 | Teaching & Related | | | | |
| | Fields | | Director of Health Education | | 192 |
| | (44 titles comparable) | | Educational Director | | 199 |
| | | | Educational Organizer | | 199 |
| | | | Educational Supervisor | | 199 |
| | | | Rector - Education | | 010 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|------|--|------|--|---|--|
| Code | Title | Code | Subtract | Add | Code Code |
| | These items would not be in the final 1961 data in occupation 010 due to a computer edit which changed all occupation 010 in industry 801 and 803 to occupation 135. | | (School Superintendent (Secon. and Elem. Superintendent Bd. of Ed. (City Superintendent of Schools | | 010)) 010) 010) |
| 140 | Physicians & Surgeons (89 titles comparable) | 3111 | Osteopathic Surgeon | | 146 |
| | | | | Medical Director Health Service | 1134 |
| 141 | Dentists (17 titles comparable) | 3113 | | | |
| 142 | Nurses, Graduate Supervisors, Nursing Occs. (11 titles comparable) | 3130 | | | |
| | Nurses, Graduate - except Supervisors (27 titles comparable) | 3131 | | Director of Nurses - Hosp. Directrice des infirmières, Hospital Nursing Director, Hosp. Nursing Superintendent, Hospital Superintendent of Nurses, Hospital Instructeur, soins Medicaux, Hospital Nursing Instructor, Hosp. | 1134 1134 1134 1134 1134 2793 2793 |

TABLE B.4 (continued)

| 1961 | | 1971 | | | To | From |
|--|--|------|-----------------------------|--|------|--------------------------------------|
| Code | Title | Code | Subtract | Add | Code | Code |
| | | | | Nursing Teacher, Hosp. | | 2793 |
| | | | | Teacher - School of Nursing | | 2793 |
| 143 | Nurses in Training (11 titles comparable) | 3133 | | | | |
| Note: We have not included this occupation in our cost of comparable classes for which data are included because this occupation has virtually ceased to exist as a result of the new training programs. | | | | | | |
| 145 | Optometrists (3 titles comparable) | 3153 | | | | |
| 146 | Osteopaths & Chiropractors (9 titles comparable) | 3117 | | Osteopathic Surgeon, Any Ind. | | 3111 |
| Note: Because of the large number of osteopathic surgeons relative to the number of osteopaths and chiropractors, we have not included this occupation in the list of comparable classes. | | | | | | |
| 151 | Judges & Magistrates (15 titles comparable) | 2341 | Surrogate, Legal Service | | 153 | |
| 153 | Lawyers & Notaries (52 titles comparable) | 2343 | | Brief writer - law legal service. County Ordinary, Local Admin. Legal Administrator - Public Admin. Surrogate, Legal Service Attorney General, Public Admin. | | 2349 2349 2349 2341 1119 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|--|---|------|---|---|------------------------------|
| Code | Title | Code | Subtract | Add | Code |
| 163 | Nuns & Brothers, n.o.r. (13 titles comparable) | 2513 | | Administrateur de communauté Communauté religieuse | 2511 |
| Note: This occupation is not included in the list of comparable occupations because of the special consideration entering into the calculation of remuneration. | | | | | |
| 181 | Architects (7 titles comparable) | 2141 | Marine Architect, Any Ind. Naval Architect, Any Ind. | | 102 102 |
| | | | | Architects Paysagiste, Any Ind. | 2131 |
| 182 | Draughtsmen (45 titles comparable) | 2163 | | Architectural Technician, Any Ind. Photogrammetrist | 2165 2169 |
| Note: We have not included this occupation in our list of comparable classes because of the large number of architectural technicians relative to the number of draughtsmen. | | | | | |
| 186 | Economists (34 titles comparable) | 2311 | | Business Consultant Business Management Consultant, Any Ind. Market Research Worker, Any Ind. | 1179 1179 2319 |
| 187 | Computer Programmer | 2183 | Accounting Methods Analyst, Any Ind. Analyste de systèmes, Toute Ind. | | 198 198 |
| Note: This occupation was not included in our list of comparable classes because with so few persons in 1961 (765) compared to the number in 1971 (22,480) a comparison of earnings would not be meaningful. | | | | | |

TABLE B.4 (continued)

| | | | | To | From |
|--|--|------|--|--|-------------------|
| 1961 | | 1971 | | 1961 | 1971 |
| Code | Title | Code | Subtract | Add | Code |
| The Ministry of State for Science and Technology adds the following footnote: | | | | | |
| According to the two-way conversion table provided to us by Statistics Canada, Systems Analysts were excluded from the 1961 Census occupation "Computer Programmer". However, according to Statistics Canada, a survey of 1961 frequency distribution of titles indicates this group must have been included in the 1961 occupation "Computer Programmer". Thus this group appears to have maintained a reasonable correspondence between 1961 and 1971. | | | | | |
| 191 | Dieticians (12 titles comparable) | 3152 | Aide dieteticienne, Hospital | | 416 |
| 232 | Stenographers | 4111 | Departmental Sec. Any Ind. | | 010 |
| | | | | Secrétaire-comptable (Book keeping) | 4131 |
| 234 | Typists & Clerk - Typists | 4113 | Addressing Clerk, Any Ind. Hospital Clerk Ward Clerk, Hospital Health Service | | 249 249 249 |
| 316 | Newsvendors (61 titles) | 5143 | | Agent abonné - Imprimerie & édition | 5141 |
| 323 | Service Station Attendants (WorNP) (17 titles comparable) | 5145 | | | |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | | From | |
|------|--|------|-----------------------------------|---|------|--------------|--|
| Code | Title | Code | Subtract | Add | 1961 | 1971 | |
| | | | | | Code | Code | |
| 331 | Insurance Salesmen & Agents (OA and W) (47 titles comparable) | 5171 | Insurance Appraiser, Any Ind. | | 338 | | |
| | | | | Claims Supervisor, Insurance Real Estate Insurance Inspector Any Exc. Insurance Ind. | | 5170 1176 | |
| 336 | Security Salesmen & Brokers (OA and W) (32 titles comparable) | 5173 | | Securities Analyst, Investment Securities Clerk - Investment; Banking | | 1171 4135 | |
| 401 | Firemen, Fire Protection | 6111 | Fire Equipment Inspector | | 510 | | |
| | | | | Fire Marshal, Any Ind. | | 1119 | |
| 403 | Policemen & Detectives, Govt. (72 titles comparable) | 6112 | Harbour Master, Any Ind. | | 010 | | |
| | Policemen & Investi- gators, Private | 6113 | Investigator, N.S. Rail Trans. | | 510 | | |
| 407 | Commissioned Officers Armed Forces (21 titles comparable) | 6116 | | | | | |
| 408 | Other ranks, Armed Forces (13 titles comparable) | 6117 | | | | | |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|------|---|------|--|---|----------------------|
| Code | Title | Code | Subtract | Add | Code |
| 414 | Bartenders (7 titles comparable) | 6123 | | | |
| 451 | Barbers, Hairdressers Manicurists | 6143 | | Instructeur-école de barbiers et de coiffeurs Manager Barber College Teacher Barber College; Beauty School | 2791 2791 2791 |
| 520 | Air Pilots, Navigators & Flight Engineers (34 titles comparable) | 9111 | | Flight Operations Inspector Govt. Service Flying Instructor Air Trans. Pilot Instructor Air Trans. | 1116 2797 2797 |
| 531 | Locomotive Engineers | 9131 | Locomotive-Crane Fireman, Any Ind. Car Shunter Rail Trans. | | 871 535 |
| 532 | Locomotive Firemen | | | | |
| 541 | Deck Officers, Ship | 9151 | | Port Captain, Water Trans. | 1147 |
| 543 | Engineering Officer, Ship (12 titles comparable) | 9153 | | Port Engineer, Water Trans. | 1147 |
| 547 | Engineer- Room Ratings, Firemen & Oilers (Ship) (16 titles comparable) | 9157 | | Lightermen, Water Trans. | 9159 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|------|--|------|---|--|----------------------|
| Code | Title | Code | Subtract | Add | Code |
| 551 | Bus Drivers (8 titles comparable) | 9171 | | | |
| 552 | Taxi Drivers & Chauffeurs (21 titles comparable) | 9173 | | Ambulancier, toute ind. | 3139 |
| 561 | Operators, electric street, railway | 9191 | Operateur de Metro-Trans. | | 569 |
| 585 | Telegraph Operators | 9553 | | Morse Supervisor, Teleg. & Cable Service Observer, Teleg. Cable | 9550 9559 |
| 587 | Postmen & Mail Carriers (39 titles comparable) | 4172 | Distributeur de Courrier-toute ind. | | 249 |
| | | | | Letter Carriers Supervisor, Postal Service Mail Contractor, Postal Service | 4170 4170 |
| 588 | Messengers (33 titles comparable) | 4177 | Office Boy, Any Ind. Office Girl, Any Ind. | | 249 249 |
| | | | | Call Boy/Girl-Rail Trans. | 9139 |

Note: This occupation class was not included because of the likely large number of office boys and girls.

TABLE B.4 (continued)

| | | | | To | From | |
|-------|------------------------|------|----------------------------------|------|------|------|
| 1961 | | 1971 | | 1961 | 1971 | |
| Code | Title | Code | Subtract | Add | Code | Code |
| 601 | Farmers & Stock | 7112 | Dog Raiser (E or OA) | | 609 | |
| | raisers (E or OA) | | Dog Raiser | | | |
| | (71 titles comparable) | | Dog Breeder (E or OA) | | 609 | |
| | | | Dog Breeding | | | |
| | | | Owner (Breeder) | | 609 | |
| | | | Eleveur de chiens (E or PC) | | 609 | |
| | | | Dog fancier (breeder) - | | | |
| | | | Elevage de chiens (Dog Breeding) | | | |
| <hr/> | | | | | | |
| 631 | Fishermen | 7319 | | | | |
| | Fishing, Hunting, | | | | | |
| | Trapping & Related | | | | | |
| | Occupations | | | | | |
| | Fishermen, Net, Trap | 7313 | | | | |
| | & line | | | | | |
| | (39 titles comparable) | | | | | |
| | Captains & Officers, | 7311 | | | | |
| | Fishing Vessels | | Capitaine de chalutier, | | 545 | |
| | | | (Trawler) - Pêcherie | | | |
| | | | Scaler-Fishing; Fish Prod. | | 920 | |
| | | | Ind., Trade | | | |
| <hr/> | | | | | | |
| 701 | Flour and Grain, | 8211 | Grain Mixer-Grain, | | | |
| | Milling Occupations | | Miller Trade | | 920 | |
| | (37 titles comparable) | | | | | |
| | | | Flour Blender - Grain, | | | |
| | | | Mill | | 708 | |
| | | | Blender-Grain Mill | | 708 | |
| | | | Head Miller-Grain | | | |
| | | | or Feed Mill | | | 8210 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|------|---|------|--|---|--------------------------|
| Code | Title | Code | Subtract | Add | Code |
| 835 | Mechanics & Repairmen Radio & T.V. Receivers (38 titles comparable) | 8537 | | Electronic Inspector, Any Ind. Hearing Aid Technician, Any Ind. Public Address Servicemen, Any Ind. | 9916 8534 8535 |
| 836 | Motion Picture Projectionists | 9557 | Projectionists, Radio & T.V. | | 198 |
| 852 | Inspectors, Construction (29 titles comparable) | 8796 | Carpenter Inspector Any Ind. | Electrical Inspector, Any Exc. Mfg. Inspecteur en électricité, toute ind. sauf manufacture Building Inspector, NES | 8736 8736 9916 |
| 854 | Brick and Stonemasons and Tile Setters (68 titles comparable) | 8782 | Aide-carreleur, toute ind. Bailer Reliner, Any Ind. Tile Layer's Helper, Any Ind. Bricklayer Foreman Any Ind. | 920 813 920 8780 | |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | | From | |
|------|---|------|--|--------------------------|------|------|------|
| Code | Title | Code | Subtract | Add | Code | Code | Code |
| | | | | Expander - Metal Working | | 8339 | |
| 801 | Tool and Die Making Occupations (39 titles comparable) | 8311 | Gauger Metal Processing | | 917 | | |
| | | | Tool & Jig Builder - Aircraft, Motor Vehicle Mfg. | | 912 | | |
| | | | Die Setter - Any Ind. | | | 8333 | |
| | | | Jig Fitter - Metal Working, Aircraft, Motor Vehicle Mfg. | | | 8335 | |
| | | | Plate Setter - Metal Working | | | 8334 | |
| 822 | Mechanics and Repairmen, Motor Vehicles (86 titles comparable) | 8581 | Auto Wrecker - Any Ind. | | 819 | | |
| | | | Demolisseur - demolition d'automobiles | | 819 | | |
| | | | Moteur de pneus - Stelies de reparation de pneus | | 713 | | |
| | | | Peintre débosseur - repar. d'automobiles | | | 843 | |
| | | | Wrecker - Auto Wrecking | | 819 | | |
| | | | Whole | | | | |
| | | | Caterpillar Repairmen - Any Ind. | | | 8584 | |
| | | | Chep mécanicien, Répar. d'automobiles | | | 8580 | |
| | | | Electric-Truck Repairmen - Any Ind. | | | 8533 | |
| | | | Generator Repairmen - Motor Veh. Repairs | | | 8533 | |

TABLE B.4 (continued)

| 1961 | | 1971 | | | To | From |
|------|--|------|-------------------------------|---|------|------|
| Code | Title | Code | Subtract | Add | 1961 | 1971 |
| | | | | Headlight Repairmen | | |
| | | | | Motor Veh. Repairs | | 8533 |
| | | | | Ignition Expert. | | |
| | | | | Motor Veh. Repairs | | 8533 |
| | | | | Ignition Man. | | |
| | | | | Motor Veh. Repairing | | 8533 |
| | | | | Ignition Mechanic - | | |
| | | | | Motor Veh. Repairing | | 8533 |
| | | | | Ignition Repairmen - | | |
| | | | | Motor Veh. Repairing | | 8533 |
| | | | | Speedometer Repairmen - | | |
| | | | | Motor Veh. | | 8587 |
| | | | | Test Driver, Motor Veh. | | |
| | | | | & Parts Mfg. | | 8526 |
| | | | | Towman, | | |
| | | | | Motor Veh. Repairing | | 9175 |
| | | | | Tractor Mechanic - | | |
| | | | | Any Ind. | | 8584 |
| | | | | Tractor Repairmen - | | |
| | | | | Any Ind. | | 8584 |
| | | | | Tractor Servicemen - Any Ind. | | 8584 |
| | | | | Vent Man. - Motor Veh. | | |
| | | | | & Parts Mfg. | | 8513 |
| | | | | Windshield Man. - | | |
| | | | | Motor Veh. Repairing | | 8795 |
| 833 | Power Station Operators (28 titles comparable) | 9531 | Auxiliary Man, Elec. Power | | 872 | |
| | | | | Gas Dispatcher, | | |
| | | | | Gas Distribution | | 9539 |
| | | | | Dynamo Man-Elec. Power | | 8739 |
| | | | | Load Checker - Elec. Power | | 8734 |
| | | | | Verificateur du courant Electrique-Electricité | | 8736 |

TABLE B.4 (continued)

| 1961 | | 1971 | | | To | From |
|------|--|------|--|-------------------------------|------|------|
| Code | Title | Code | Subtract | Add | 1961 | 1971 |
| 705 | Fish Cannery, Curers & Packers | 8217 | Cooler man - Fish Prod. Ind. | | 920 | |
| | | | | Fish Handler - Fish Prod. | | 8226 |
| 771 | Typesetters and Compositors (44 titles comparable) | 9511 | Linotype Caster, Print. & Pub. | | 779 | |
| | | | Type Caster Print. & Pub. | | 779 | |
| | | | | Ticket Printer, Any Ind. | | 9512 |
| | | | | Label Printer, Any Ind. | | 9512 |
| | | | | Line-up Man, Print. & Pub. | | 9519 |
| 783 | Metal Rolling Occupations (61 titles comparable) | 8135 | Ball Boy - Metal Working | | 920 | |
| | | | Roll Setter - Metal, Processing | | 789 | |
| | | | Roller - Jewellery | | 819 | |
| | | | Scarfer - Metal Processing | | 789 | |
| | | | Wire Straightener - Wire Mfg. | | 819 | |
| | | | Rolling-Mill Foreman-Metal Processing | | | 8130 |
| | | | Contremaître de laminoir-ind., métallique primaire | | | 8130 |
| | | | Delivery-Table Feeder Metal Processing | | | 8148 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|------|---|------|--|--|-----------|
| Code | Title | Code | Subtract | Add | Code Code |
| | | | | Brickmason Foreman, Any Ind. | 8780 |
| | | | | Contremaître-briqueleur, toute ind. | 8780 |
| | | | | Precast Moulder, Precast Concrete | 8155 |
| | | | | Stonemason Foreman, Any Ind. | 8780 |
| | | | | Cement-Finishing Foreman, Const. | 8780 |
| | | | | Cementer - Ship & Boat, Bldg. & Repair | 8787 |
| | | | | Tireur de joints (ciment), Const. de routes | 8713 |
| 855 | Concrete Finishers and Related Occupations (28 titles comparable) | 8783 | Aide-finisher de ciment, toute ind. | | 920 |
| | | | Aide-finisher de terrazzo, toute ind. | | 920 |
| | | | Aide-poseur de terrazo toute ind. | | 920 |
| | | | Cement Finisher's Helper, Any Ind. | | 920 |
| | | | Cement-Gun Nozzleman, Const. | | 859 |
| | | | Concrete Gunman, Any Ind. | | 859 |

TABLE B.4 (continued)

| 1961 | | 1971 | | To | From |
|------|---|------|--------------------------------|-----------------------------|-----------|
| Code | Title | Code | Subtract | Add | Code Code |
| | | | Gunner - Const. | | 859 |
| | | | Nozzleman - Const. | | 859 |
| | | | Terrazzo Finisher's Helper, | | |
| | | | Any Ind. | | 920 |
| | | | Terrazzo Worker's Helper, | | |
| | | | Any Ind. | | 920 |
| | | | | Cement Finishing, | |
| | | | | Foreman, Const. | 8780 |
| | | | | Cementer-Ship & Boat, | |
| | | | | Bldg. & Repair | 8787 |
| | | | | Tireur de joint (ciment), | |
| | | | | const. de routes | 8713 |
| 856 | Plasterers & Lathers (27 titles comparable) | 8784 | Dry-Wall Applicator, Const. | | 859 |
| | | | | Entrepreneur plâtrier (E) | 8780 |
| | | | | Const. | |
| | | | | Lather Foreman, Const. | 8780 |
| | | | | Plasterer Foreman, Any Ind. | 8780 |

APPENDIX C

DATA FOR REGRESSION ANALYSIS

Data on average annual earnings, mean age, mean years of schooling, employment in government service, employment in Ontario, total labour force by selected occupation for:

| | | | |
|----------------|------|----------------|-----------|
| <u>Males</u> | 1941 | 28 occupations | Table C.1 |
| | 1951 | 33 occupations | Table C.2 |
| | 1961 | 47 occupations | Table C.3 |
| | 1971 | 47 occupations | Table C.4 |
| <u>Females</u> | 1941 | 15 occupations | Table C.5 |
| | 1951 | 21 occupations | Table C.6 |
| | 1961 | 34 occupations | Table C.7 |
| | 1971 | 34 occupations | Table C.8 |

TABLE C.1

MALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Yi),
 MEAN YEAR OF AGE (Ai), MEAN YEARS OF EDUCATION (Ei), NUMBER EMPLOYED
 IN GOVERNMENT SERVICE (Gi), NUMBER EMPLOYED IN ONTARIO (Oi), TOTAL LABOUR
 FORCE IN OCCUPATION (Ci), FOR 28 SELECTED OCCUPATIONS IN CANADA, 1941

| OCCUPATION TITLE | NUMBER | Yi | Ai | Ei | Gi | Oi | Ci |
|---------------------------------------|--------|------|----|------|---------------|---------------|-------|
| Architects | 1 | 1416 | 47 | 13.0 | 138 | 562 | 1297 |
| Electrical Engineers | 2 | 2246 | 40 | 12.9 | 178 | 2410 | 5118 |
| Physicians and Surgeons | 3 | 2363 | 46 | 14.7 | 147 | 4486 | 11489 |
| Dentists | 4 | 2313 | 43 | 14.6 | 9 | 1868 | 4165 |
| Nurses | 5 | 1998 | 38 | 11.7 | 7 | 86 | 227 |
| Judges and Magistrates | 6 | 865 | 62 | 13.7 | 460 | 164 | 480 |
| Lawyers and Notaries | 7 | 5369 | 46 | 14.5 | 339 | 3030 | 8492 |
| Professors | 8 | 2833 | 40 | 14.5 | 21 | 992 | 3940 |
| Teachers | 9 | 2198 | 36 | 13.5 | 138 | 7648 | 23795 |
| Barbers and Hairdressers | 10 | 761 | 42 | 7.8 | 28 | 5911 | 15710 |
| Firemen | 11 | 1592 | 42 | 8.6 | 4851 | 2036 | 5210 |
| Policemen | 12 | 1380 | 41 | 9.4 | 13285 | 5631 | 17071 |
| Secretaries and Typists | 13 | 912 | 28 | 11.3 | 766 | 1523 | 4141 |
| Pilots and Navigators | 14 | 2670 | 31 | 11.5 | 24 | 290 | 697 |
| Locomotive Engineers, Firemen | 15 | 1935 | 45 | 5.1 | 9 | 4657 | 12613 |
| Bus Drivers | 16 | 1183 | 37 | 8.8 | 20 | 1192 | 3157 |
| Taxi Drivers and Chauffeurs | 17 | 733 | 34 | 7.6 | 168 | 4073 | 13715 |
| Subway and Streetcar Operators | 18 | 1347 | 52 | 8.2 | 4 | 1671 | 4260 |
| Telegraph Operators | 19 | 1547 | 41 | 9.6 | 40 | 1665 | 5216 |
| Mail Carriers | 20 | 1080 | 45 | 8.8 | 7279 | 3175 | 7713 |
| Flour and Grain Milling | 21 | 933 | 43 | 7.6 | 4 | 1405 | 2653 |
| Metal Rolling | 22 | 1614 | 37 | 7.8 | 2 | 697 | 944 |
| Tool and Die Machinery | 23 | 1485 | 35 | 9.6 | 6 | 6050 | 7276 |
| Power Station Operators | 24 | 1518 | 42 | 8.9 | 23 | 1120 | 2422 |
| Movie Projectionists | 25 | 1477 | 38 | 9.4 | 13 | 672 | 1658 |
| Brick and Stone Masons | 26 | 785 | 45 | 7.0 | 37 | 4335 | 9498 |
| Plasterers and Related | 27 | 690 | 46 | 7.1 | 5 | 1859 | 5003 |
| Inspectors - Construction | 28 | 1480 | 49 | 9.6 | 61 | 194 | 466 |
| Total Canada | | 993 | 39 | 8.1G | = | 0 | = |
| (for the 1941 base of 28 occupations) | | | | | 1941 0.032 | 1941 0.428 | |

Notes

1941, 1951 and 1961 earnings exclude Yukon and Northwest Territories but are included in 1971.

1971 total labour force and 1961 selected occupations labour force data includes Yukon and Northwest Territories.

Age, education, and government data include Yukon and Northwest Territories.

1971 data for the following occupations are based on the largest single occupation within the grouping shown in Table 2: Nurses, Graduate; Professors, Teachers.

TABLE C.2

MALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Yi),
 MEAN YEARS OF AGE (Ai), MEAN YEARS OF EDUCATION (Ei), NUMBER EMPLOYED
 IN GOVERNMENT SERVICE (Gi), NUMBER EMPLOYED IN ONTARIO (Oi), TOTAL LABOUR
 FORCE IN OCCUPATION (Ci), FOR 33 SELECTED OCCUPATIONS IN CANADA, 1951

| OCCUPATION TITLE | NUMBER | | Yi | Ai | Ei | Gi | Oi | Ci |
|-------------------------------|-----------|-----------|------|----|------|-------|-------|-------|
| | 1951 LIST | 1941 LIST | | | | | | |
| Architects | 1 | 1 | 3712 | 43 | 14.2 | 200 | 723 | 1697 |
| Chemical Engineer | 2 | - | 3918 | 35 | 14.9 | 117 | 1357 | 2569 |
| Civil Engineers | 3 | - | 3752 | 41 | 14.8 | 1800 | 2655 | 7743 |
| Electrical Engineers | 4 | 2 | 3817 | 37 | 14.7 | 264 | 3545 | 6338 |
| Physicians and Surgeons | 5 | 3 | 4268 | 44 | 15.0 | 295 | 5038 | 13665 |
| Dentists | 6 | 4 | 4415 | 46 | 15.0 | 37 | 1935 | 4540 |
| Nurses | 7 | 5 | 2205 | 37 | 11.7 | 14 | 115 | 868 |
| Judges and Magistrates | 8 | 6 | 6150 | 59 | 14.5 | 586 | 191 | 592 |
| Lawyers and Notaries | 9 | 7 | 3987 | 45 | 14.8 | 547 | 3281 | 8841 |
| Professors | 10 | 8 | 3608 | 41 | 15.0 | 19 | 1242 | 4610 |
| Teachers | 11 | 9 | 2667 | 37 | 14.2 | 223 | 12365 | 28859 |
| Service Station Attendants | 12 | - | 1654 | 27 | 9.2 | 15 | 789 | 7510 |
| Barbers and Haidressers | 13 | 10 | 1805 | 46 | 8.2 | 44 | 5074 | 13561 |
| Firemen | 14 | 11 | 2606 | 39 | 9.4 | 8301 | 3284 | 8878 |
| Policemen and Detectives | 15 | 12 | 2490 | 29 | 10.0 | 16240 | 6796 | 19874 |
| Secretaries and Typists | 16 | 13 | 2201 | 34 | 11.5 | 1054 | 1753 | 5038 |
| Pilots and Navigators | 17 | 14 | 4258 | 32 | 12.0 | 40 | 344 | 1135 |
| Locomotive Engineers, Firemen | 18 | 15 | 3321 | 42 | 9.4 | 13 | 6144 | 16620 |
| Bus Drivers | 19 | 16 | 2364 | 36 | 9.1 | 113 | 3522 | 11376 |
| Taxi Drivers and Chauffeurs | 20 | 17 | 1689 | 37 | 8.3 | 310 | 5299 | 21079 |
| Subway and Streetcar Optrs. | 21 | 18 | 2562 | 48 | 9.1 | 7 | 2648 | 6195 |
| Telegraph Operators | 22 | 19 | 2700 | 36 | 10.6 | 39 | 1769 | 5604 |
| Mail Carriers | 23 | 20 | 2108 | 43 | 9.1 | 8720 | 3468 | 8786 |
| Flour and Grain Milling | 24 | 21 | 1932 | 34 | 8.2 | 1 | 1058 | 2104 |
| Metal Rolling | 25 | 22 | 2747 | 39 | 8.3 | 3 | 1170 | 1701 |
| Tool and Die Machinery | 26 | 23 | 2794 | 31 | 10.1 | 88 | 7571 | 9429 |
| Motor Vehicle Mechanics | 27 | - | 2108 | 35 | 8.7 | 1419 | 22835 | 64199 |
| Typesetters and Compositors | 28 | - | 2509 | 36 | 10.0 | 278 | 6691 | 14521 |
| Power Station Operators | 29 | 24 | 2637 | 40 | 9.9 | 112 | 1306 | 3112 |
| Movie Projectionists | 30 | 25 | 2607 | 41 | 9.8 | 29 | 749 | 1933 |
| Brick and Stone Masons | 31 | 26 | 2104 | 40 | 8.1 | 266 | 8989 | 18791 |
| Plasterers and Related | 32 | 27 | 2160 | 37 | 8.1 | 42 | 3747 | 9270 |
| Inspectors - Construction | 33 | 28 | 2543 | 45 | 10.5 | 267 | 613 | 1617 |
| Total | | | | | | G | 0 | |
| Canada | | | 2131 | 39 | 8.8 | 51= | 55= | |
| | | | | | | 0.044 | 0.349 | |

(for the 1941 base of 28 occupations)

Notes: See Table C.1

TABLE C.3

MALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Y_i), MEAN YEARS OF AGE (A_i), MEAN YEARS OF EDUCATION (E_i), NUMBER EMPLOYED IN GOVERNMENT SERVICE (G_i), NUMBER EMPLOYED IN ONTARIO (O_i), TOTAL LABOUR FORCE IN OCCUPATION (C_i), FOR 47 SELECTED OCCUPATIONS IN CANADA, 1961

| OCCUPATION TITLE | NUMBER | | | Y_i | A_i | E_i | G_i | O_i | C_i |
|---|--------------|--------------|--------------|-------|-------|-------|-------|-------|-------|
| | 1961 LIST | 1951 LIST | 1941 LIST | | | | | | |
| Architects | 1 | 1 | 1 | 6694 | 36 | 16.0 | 311 | 1117 | 2874 |
| Chemical Engineers | 2 | 2 | - | 7624 | 35 | 16.4 | 197 | 4195 | 2982 |
| Civil Engineers | 3 | 3 | - | 7111 | 38 | 16.1 | 2758 | 4227 | 11888 |
| Electrical Engineers | 4 | 4 | 2 | 7329 | 37 | 15.7 | 562 | 1579 | 8723 |
| Physicians and Surgeons | 5 | 5 | 3 | 6876 | 42 | 16.8 | 704 | 7408 | 19835 |
| Dentists | 6 | 6 | 4 | 7304 | 42 | 16.8 | 119 | 2178 | 5234 |
| Nurses | 7 | 7 | 5 | 3457 | 46 | 10.8 | 95 | 365 | 2354 |
| Optometrists | 8 | - | - | 6410 | 44 | 15.7 | 2 | 401 | 1160 |
| Judges and Magistrates | 9 | 8 | 6 | 10178 | 59 | 15.2 | 796 | 270 | 817 |
| Lawyers and Notaries | 10 | 9 | 7 | 7366 | 42 | 16.7 | 780 | 4740 | 11777 |
| Physicists | 11 | - | - | 7440 | 35 | 16.5 | 372 | 410 | 673 |
| Biologists | 12 | - | - | 5991 | 37 | 16.1 | 672 | 520 | 1397 |
| Economists | 13 | - | - | 6993 | 38 | 14.9 | 416 | 1001 | 2026 |
| Professors | 14 | 10 | 8 | 7113 | 37 | 16.4 | 1 | 2562 | 8779 |
| Teachers | 15 | 11 | 9 | 5527 | 40 | 14.8 | 463 | 17562 | 49219 |
| Dieticians | 16 | - | - | 4543 | 42 | 13.3 | 3 | 23 | 66 |
| Newsboys | 17 | - | - | 495 | 20 | 8.9 | 0 | 2359 | 5733 |
| Service Station Attendants | 18 | 12 | - | 2068 | 28 | 8.7 | 86 | 8052 | 19525 |
| Insurance Salesmen | 19 | - | - | 5283 | 39 | 11.4 | 143 | 10836 | 26373 |
| Salesmen | 20 | - | - | 5876 | 41 | 11.6 | 32 | 2318 | 5151 |
| Bartenders | 21 | - | - | 2644 | 40 | 8.3 | 90 | 2878 | 9163 |
| Barbers and Hairdressers | 22 | 13 | 10 | 2643 | 43 | 8.0 | 53 | 7605 | 18840 |
| Firemen | 23 | 14 | 11 | 4443 | 37 | 9.2 | 13253 | 5246 | 14315 |
| Policemen and Detectives | 24 | 15 | 12 | 4324 | 36 | 9.8 | 26184 | 10519 | 29806 |
| Secretaries and Typists | 25 | 16 | 13 | 3663 | 35 | 11.2 | 1724 | 2368 | 7023 |
| Pilots and Navigators | 26 | 17 | 14 | 8378 | 35 | 11.7 | 48 | 794 | 2739 |
| Locomotive Engineers and Firemen | 27 | 18 | 15 | 5554 | 42 | 9.6 | 26 | 2869 | 11319 |
| Deck Officers | 28 | - | - | 5207 | 42 | 8.8 | 191 | 925 | 5166 |
| Engineering Officers, Ship | 29 | - | - | 4508 | 42 | 8.5 | 154 | 636 | 3035 |
| Engine, Boiler-room Crew, Ship | 30 | - | - | 3063 | 35 | 7.6 | 150 | 592 | 1769 |
| Bus Drivers | 31 | 19 | 16 | 3582 | 41 | 7.9 | 339 | 4732 | 18106 |
| Taxi Drivers and Chauffeurs | 32 | 20 | 17 | 2448 | 41 | 8.0 | 628 | 6087 | 21706 |
| Subway Streetcar Operators | 33 | 21 | 18 | 4596 | 41 | 8.7 | 2 | 639 | 1342 |
| Telegraph Operators | 34 | 22 | 19 | 4093 | 36 | 10.0 | 45 | 1223 | 3923 |
| Mail Carriers | 35 | 23 | 20 | 3344 | 41 | 8.6 | 12792 | 4932 | 12792 |
| Flour and Grain Milling | 36 | 24 | 21 | 2953 | 39 | 7.6 | 4 | 929 | 2233 |
| Fish Canning, Curing and Packing | 37 | - | - | 1428 | 36 | 6.4 | 5 | 184 | 6124 |
| Metal Rolling | 38 | 25 | 22 | 4857 | 41 | 8.2 | 12 | 1585 | 2254 |
| Tool and Die Machinery | 39 | 26 | 23 | 4485 | 39 | 9.6 | 117 | 8298 | 10559 |
| Motor Vehicle Mechanics | 40 | 27 | - | 3276 | 32 | 8.2 | 2680 | 31802 | 88192 |
| Radio and T.V. Repairmen | 41 | - | - | 1357 | 35 | 9.8 | 133 | 3039 | 7651 |
| Typesetters and Compositors | 42 | 28 | - | 4205 | 36 | 9.6 | 461 | 7058 | 15320 |
| Power Station Operators | 43 | 29 | 24 | 4927 | 39 | 9.6 | 218 | 1719 | 4999 |
| Movie Picture Projectionists | 44 | 30 | 25 | 3784 | 46 | 9.0 | 29 | 480 | 1378 |
| Brick and Stone Masons | 45 | 31 | 26 | 2991 | 37 | 7.4 | 890 | 12607 | 27029 |
| Plasterers and Related | 46 | 32 | 27 | 3094 | 35 | 7.6 | 90 | 4123 | 10051 |
| Inspectors - Construction | 47 | 33 | 28 | 4201 | 44 | 9.9 | 331 | 1562 | 3887 |
| Total | | | 3660 | 39 | 8.9 | 61= | 61= | | |
| (for the 1941 base of 28 occupation Canada) | | | | | | 0.068 | 0.380 | | |

Notes: See Table C.1

TABLE C.4

MALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Y₁), MEAN YEARS OF AGE (A₁), MEAN YEARS OF EDUCATION (E₁), NUMBER EMPLOYED IN GOVERNMENT SERVICE (G₁), NUMBER EMPLOYED IN ONTARIO (O₁), TOTAL LABOUR FORCE IN OCCUPATION (C₁), FOR 47 SELECTED OCCUPATIONS IN CANADA, 1971

| OCCUPATION TITLE | NUMBER | | | Y ₁ | A ₁ | E ₁ | G ₁ | O ₁ | C ₁ |
|---------------------------------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 1961 LIST | 1951 LIST | 1941 LIST | | | | | | |
| Architects | 1 | 1 | 1 | 12496 | 40 | 16.2 | 325 | 1465 | 3925 |
| Chemical Engineers | 2 | 2 | - | 10831 | 35 | 16.1 | 175 | 1835 | 3405 |
| Civil Engineers | 3 | 3 | - | 11325 | 38 | 15.1 | 4990 | 8120 | 21225 |
| Electrical Engineers | 4 | 4 | 2 | 11139 | 37 | 14.8 | 1105 | 7240 | 14815 |
| Physicians and Surgeons | 5 | 5 | 3 | 19791 | 43 | 16.9 | 870 | 9535 | 25695 |
| Dentists | 6 | 6 | 4 | 18195 | 43 | 17.0 | 695 | 2645 | 6120 |
| Nurses | 7 | 7 | 5 | 6188 | 26 | 12.0 | 280 | 830 | 3945 |
| Optometrists | 8 | - | - | 1526 | 46 | 16.1 | 2 | 450 | 1430 |
| Judges and Magistrates | 9 | 8 | 6 | 21541 | 55 | 15.5 | 1265 | 410 | 11190 |
| Lawyers and Notaries | 10 | 9 | 7 | 14597 | 41 | 16.7 | 1270 | 6500 | 15535 |
| Physicists | 11 | - | - | 11237 | 34 | 16.5 | 138 | 425 | 740 |
| Biologists | 12 | - | - | 9221 | 35 | 15.9 | 1185 | 785 | 2250 |
| Economists | 13 | - | - | 10993 | 35 | 15.2 | 1595 | 2565 | 5040 |
| Professors | 14 | 10 | 8 | 12092 | 37 | 16.9 | 20 | 8860 | 21770 |
| Teachers | 15 | 11 | 9 | 9738 | 33 | 15.5 | 1090 | 34475 | 91250 |
| Dieticians | 16 | - | - | 8404 | 36 | 16.2 | 15 | 0 | 85 |
| Newsboys | 17 | - | - | 903 | 18 | 9.6 | 0 | 2515 | 7115 |
| Service Station Attendants | 18 | 12 | - | 2426 | 25 | 9.8 | 95 | 11935 | 29175 |
| Insurance Salesmen | 19 | - | - | 8625 | 44 | 11.5 | 445 | 11855 | 22645 |
| Salesmen | 20 | - | - | 9555 | 41 | 12.6 | 15 | 3235 | 7130 |
| Bartenders | 21 | - | - | 4215 | 40 | 8.6 | 170 | 3850 | 11170 |
| Barbers and Hairdressers | 22 | 13 | 10 | 4458 | 40 | 8.1 | 55 | 8385 | 20730 |
| Firemen | 23 | 14 | 11 | 8896 | 38 | 9.5 | 16705 | 7120 | 18045 |
| Policemen and Detectives | 24 | 15 | 12 | 8810 | 40 | 9.9 | 33155 | 10030 | 28880 |
| Secretaries and Typists | 25 | 16 | 13 | 6424 | 37 | 11.4 | 2305 | 3650 | 10300 |
| Pilots and Navigators | 26 | 17 | 14 | 14002 | 36 | 12.0 | 195 | 1105 | 4140 |
| Locomotive Engineers and Firemen | 27 | 18 | 15 | 8845 | 47 | 8.6 | 145 | 3130 | 7870 |
| Deck Officers | 28 | - | - | 9295 | 43 | 8.8 | 655 | 785 | 4990 |
| Engineering Officers, Ship | 29 | - | - | 8300 | 43 | 8.4 | 430 | 515 | 3045 |
| Engine, Boiler-room Crew, Ship | 30 | - | - | 5469 | 39 | 7.5 | 225 | 390 | 1530 |
| Bus Drivers | 31 | 19 | 16 | 5923 | 43 | 7.3 | 1005 | 7900 | 28355 |
| Taxi Drivers and Chauffeurs | 32 | 20 | 17 | 4116 | 41 | 8.1 | 600 | 7845 | 24180 |
| Subway Streetcar Operators | 33 | 21 | 18 | 8250 | 45 | 8.1 | 30 | 555 | 685 |
| Telegraph Operators | 34 | 22 | 19 | 7115 | 39 | 10.0 | 30 | 420 | 1455 |
| Mail Carriers | 35 | 23 | 20 | 5722 | 39 | 9.2 | 16225 | 6275 | 16225 |
| Flour and Grain Milling | 36 | 24 | 21 | 5517 | 40 | 7.3 | 10 | 1270 | 2985 |
| Fish Canning, Curing and Packing | 37 | - | - | 2277 | 33 | 6.8 | 15 | 130 | 7610 |
| Metal Rolling | 38 | 25 | 22 | 7751 | 39 | 8.2 | 20 | 1925 | 2995 |
| Tool and Die Machinery | 39 | 26 | 23 | 8118 | 38 | 10.0 | 70 | 8085 | 10170 |
| Motor Vehicle Mechanics | 40 | 27 | - | 5833 | 36 | 8.2 | 3375 | 41380 | 111350 |
| Radio and T.V. Repairmen | 41 | - | - | 5767 | 38 | 9.6 | 530 | 7840 | 16705 |
| Typesetters and Compositors | 42 | 28 | - | 6929 | 42 | 9.8 | 305 | 4710 | 11170 |
| Power Station Operators | 43 | 29 | 24 | 9180 | 40 | 10.0 | 325 | 2055 | 4790 |
| Movie Picture Projectionists | 44 | 30 | 25 | 6483 | 33 | 9.4 | 35 | 480 | 1430 |
| Brick and Stone Masons | 45 | 31 | 26 | 5950 | 41 | 7.0 | 3705 | 12740 | 25490 |
| Plasterers and Related | 46 | 32 | 27 | 5966 | 36 | 7.3 | 90 | 4185 | 10535 |
| Inspectors - Construction | 47 | 33 | 28 | 7091 | 40 | 10.7 | 370 | 1065 | 2630 |
| Total Canada | | | | 6599 | 38 | 8.5 | 71= | 71= | |
| (for the 1941 base of 28 occupations) | | | | | | | 0.085 | 0.380 | |

Notes: See Table C.1

TABLE C.5

FEMALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Y_i),
 MEAN YEAR OF AGE (A_i), MEAN YEARS OF EDUCATION (E_i), NUMBER EMPLOYED
 IN GOVERNMENT SERVICE (G_i), NUMBER EMPLOYED IN ONTARIO (O_i), TOTAL LABOUR
 FORCE IN OCCUPATION (C_i), FOR 15 SELECTED OCCUPATIONS IN CANADA, 1941

| OCCUPATION TITLE | NUMBER | Y_i | A_i | E_i | G_i | O_i | C_i |
|---------------------------------------|--------|-------|-------|-------|-------|-------|-------|
| Architects | 1 | 769 | 32 | 13.8 | 3 | 8 | 16 |
| Physicians and Surgeons | 2 | 1272 | 40 | 14.3 | 10 | 212 | 384 |
| Dentists | 3 | 947 | 39 | 12.2 | 0 | 23 | 45 |
| Nurses | 4 | 702 | 35 | 12.0 | 370 | 11092 | 26887 |
| Judges and Magistrates | 5 | 900 | 52 | 14.0 | 1 | 1 | 1 |
| Lawyers and Notaries | 6 | 1510 | 39 | 14.6 | 4 | 73 | 129 |
| Professors | 7 | 1855 | 43 | 13.8 | 1 | 97 | 277 |
| Teachers | 8 | 793 | 33 | 12.5 | 3 | 17462 | 64484 |
| Barbers and Hairdressers | 9 | 485 | 29 | 9.6 | 4 | 3950 | 11003 |
| Policemen and Detectives | 10 | 939 | 41 | 10.9 | 84 | 37 | 110 |
| Secretaries and Typists | 11 | 723 | 28 | 11.2 | 12867 | 35290 | 82055 |
| Bus Drivers | 12 | 467 | 33 | 9.7 | 0 | 1 | 6 |
| Taxi Drivers and Chauffeurs | 13 | 483 | 33 | 9.7 | 2 | 32 | 64 |
| Telegraph Operators | 14 | 948 | 35 | 10.4 | 16 | 182 | 549 |
| Mail Carriers | 15 | 586 | 39 | 8.6 | 100 | 59 | 100 |
| TOTAL | 490 | | 31 | 9.7 | $G =$ | $O =$ | |
| CANADA | | | | | 41 | 41 | |
| (for the 1941 base of 15 occupations) | | | | | 0.089 | 0.378 | |

Notes: See Table C.1

TABLE C.6

MALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Yi),
 MEAN YEARS OF AGE (Ai), MEAN YEARS OF EDUCATION (Ei), NUMBER EMPLOYED
 IN GOVERNMENT SERVICE (Gi), NUMBER EMPLOYED IN ONTARIO (Oi), TOTAL LABOUR
 FORCE IN OCCUPATION (Ci), FOR 21 SELECTED OCCUPATIONS IN CANADA, 1951

| OCCUPATION TITLE | NUMBER | | Yi | Ai | Ei | Gi | Oi | Ci |
|---------------------------------------|-----------|-----------|------|----|------|-------|-------|--------|
| | 1951 LIST | 1941 LIST | | | | | | |
| Architects | 1 | 1 | 2583 | 33 | 14.3 | 6 | 21 | 43 |
| Chemical Engineers | 2 | - | 2999 | 35 | 13.8 | 0 | 1 | 3 |
| Electrical Engineers | 3 | - | 3200 | 31 | 15.0 | 0 | 6 | 11 |
| Physicians and Surgeons | 4 | 2 | 1756 | 38 | 14.9 | 7 | 325 | 660 |
| Dentists | 5 | 3 | 1938 | 37 | 14.9 | 0 | 31 | 68 |
| Nurses | 6 | 4 | 1724 | 34 | 12.9 | 439 | 18578 | 34270 |
| Judges and Magistrates | 7 | 5 | 2499 | 44 | 14.2 | 5 | 5 | 5 |
| Lawyers and Notaries | 8 | 6 | 2471 | 40 | 14.3 | 17 | 107 | 197 |
| Professors | 9 | 7 | 2635 | 39 | 14.5 | 4 | 182 | 8127 |
| Teachers | 10 | 8 | 1664 | 35 | 13.1 | 8 | 24464 | 74319 |
| Service Station Attendants | 11 | - | 758 | 34 | 9.2 | 2 | 326 | 227 |
| Barbers and Hairdressers | 12 | 9 | 1150 | 33 | 9.6 | 5 | 4029 | 10854 |
| Policemen and Detectives | 13 | 10 | 1846 | 39 | 10.7 | 123 | 70 | 200 |
| Secretaries and Typists | 14 | 11 | 1642 | 29 | 11.5 | 20312 | 58336 | 133485 |
| Bus Drivers | 15 | 12 | 760 | 36 | 9.1 | 0 | 26 | 72 |
| Taxi Drivers and Chauffeurs | 16 | 13 | 1145 | 35 | 9.6 | 2 | 82 | 275 |
| Telegraph Operators | 17 | 14 | 1741 | 31 | 10.6 | 7 | 237 | 1021 |
| Mail Carriers | 18 | 15 | 932 | 41 | 8.8 | 257 | 135 | 257 |
| Tool and Die Machinery | 19 | - | 1750 | 31 | 9.0 | 0 | 6 | 14 |
| Typesetters and Compositors | 20 | - | 1726 | 31 | 9.1 | 1 | 78 | 129 |
| Movie Projectionists | 21 | - | 1357 | 33 | 10.0 | 7 | 312 | 732 |
| TOTAL | | | 1220 | 33 | 10.0 | G = | O = | |
| CANADA | | | | | | 51 | 51 | |
| (for the 1941 base of 15 occupations) | | | | | | 0.120 | 0.382 | |

Notes: See Table C.1

TABLE C.7

FEMALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Y₁), MEAN YEARS OF AGE (A₁), MEAN YEARS OF EDUCATION (E₁), NUMBER EMPLOYED IN GOVERNMENT SERVICE (G₁), NUMBER EMPLOYED IN ONTARIO (O₁), TOTAL LABOUR FORCE IN OCCUPATION (C₁), FOR 34 SELECTED OCCUPATIONS IN CANADA, 1961

| OCCUPATION TITLE | NUMBER | | | Y ₁ | A ₁ | E ₁ | G ₁ | O ₁ | C ₁ |
|---------------------------------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 1961 LIST | 1951 LIST | 1941 LIST | | | | | | |
| Architects | 1 | 1 | 1 | 4191 | 38 | 16.6 | 9 | 21 | 66 |
| Chemical Engineers | 2 | 2 | - | 5464 | 34 | 15.6 | 1 | 11 | 14 |
| Civil Engineers | 3 | - | - | 4368 | 34 | 15.8 | 10 | 21 | 29 |
| Electrical Engineers | 4 | 3 | - | 4675 | 31 | 16.3 | 0 | 5 | 40 |
| Physicians and Surgeons | 5 | 4 | 2 | 4300 | 38 | 16.3 | 78 | 522 | 1455 |
| Dentists | 6 | 5 | 3 | 2820 | 36 | 15.3 | 4 | 121 | 235 |
| Nurses | 7 | 6 | 4 | 2750 | 36 | 12.2 | 1826 | 24214 | 59345 |
| Optometrists | 8 | - | - | 1871 | 40 | 14.1 | 2 | 13 | 35 |
| Judges and Magistrates | 9 | 7 | 5 | 4729 | 51 | 13.8 | 16 | 12 | 17 |
| Lawyers and Notaries | 10 | 8 | 6 | 4375 | 50 | 16.0 | 25 | 162 | 311 |
| Biologists | 11 | - | - | 3851 | 34 | 16.0 | 64 | 102 | 269 |
| Economists | 12 | - | - | 3753 | 34 | 14.6 | 69 | 147 | 277 |
| Professors | 13 | 9 | 7 | 5039 | 42 | 15.4 | 5 | 490 | 2366 |
| Teachers | 14 | 10 | 8 | 3397 | 36 | 13.0 | 495 | 36582 | 118807 |
| Dieticians | 15 | - | - | 2999 | 37 | 15.6 | 90 | 806 | 1849 |
| Newsboys | 16 | - | - | 639 | 30 | 9.0 | 0 | 88 | 212 |
| Service Station Attendants | 17 | 11 | - | 1640 | 37 | 9.0 | 11 | 241 | 539 |
| Insurance Salesmen | 18 | - | - | 2944 | 40 | 11.1 | 32 | 866 | 1386 |
| Salesmen | 19 | - | - | 3264 | 42 | 11.5 | 9 | 100 | 194 |
| Bartenders | 20 | - | - | 1431 | 34 | 9.0 | 0 | 16 | 267 |
| Barbers and Hairdressers | 21 | 12 | 9 | 1679 | 32 | 9.2 | 6 | 9412 | 23305 |
| Policemen and Detectives | 22 | 13 | 10 | 2931 | 39 | 10.0 | 225 | 172 | 373 |
| Secretaries and Typists | 23 | 14 | 11 | 2534 | 30 | 10.9 | 31709 | 92183 | 209642 |
| Bus Drivers | 24 | 15 | 12 | 1302 | 40 | 9.0 | 4 | 105 | 528 |
| Taxi Drivers and Chauffeurs | 25 | 16 | 13 | 1473 | 40 | 8.7 | 5 | 106 | 394 |
| Telegraph Operators | 26 | 17 | 14 | 2882 | 38 | 10.1 | 5 | 162 | 459 |
| Mail Carriers | 27 | - | - | 1584 | 43 | 8.6 | 643 | 344 | 643 |
| Flour and Grain Milling | 28 | - | - | 2191 | 35 | 6.2 | 0 | 6 | 11 |
| Fish curing, canning and packing | 29 | - | - | 667 | 34 | 7.0 | 4 | 231 | 4561 |
| Tool and Die Machinery | 30 | 19 | - | 2473 | 32 | 9.4 | 1 | 32 | 47 |
| Motor Vehicle Mechanics | 31 | - | - | 2300 | 32 | 8.5 | 1 | 53 | 199 |
| Radio and T.V. Repairmen | 32 | - | - | 2528 | 32 | 8.7 | 0 | 41 | 73 |
| Typesetters and Compositors | 33 | 20 | - | 2335 | 35 | 9.6 | 31 | 376 | 1005 |
| Brick and Stone Masons | 34 | - | - | 1787 | 39 | 8.2 | 2 | 8 | 23 |
| TOTAL | | | | 1993 | 36 | 9.6 | G = | O = | |
| CANADA | | | | | | | 61 | 61 | |
| (for the 1941 base of 15 occupations) | | | | | | | 0.135 | 0.392 | |

Notes: See Table C.1

TABLE C.8

FEMALE LABOUR FORCE: AVERAGE ANNUAL EARNINGS (Y₁), MEAN YEARS OF AGE (A₁), MEAN YEARS OF EDUCATION (E₁), NUMBER EMPLOYED IN GOVERNMENT SERVICE (G₁), NUMBER EMPLOYED IN ONTARIO (O₁), TOTAL LABOUR FORCE IN OCCUPATION (C₁), FOR 34 SELECTED OCCUPATIONS IN CANADA, 1971

| OCCUPATION TITLE | NUMBER | | | Y ₁ | A ₁ | E ₁ | G ₁ | O ₁ | C ₁ |
|---------------------------------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 1961 LIST | 1951 LIST | 1941 LIST | | | | | | |
| Architects | 1 | 1 | 1 | 5883 | 35 | 16.5 | 10 | 35 | 120 |
| Chemical Engineers | 2 | 2 | - | 6759 | 34 | 14.5 | 15 | 32 | 55 |
| Civil Engineers | 3 | - | - | 7481 | 35 | 14.8 | 65 | 115 | 215 |
| Electrical Engineers | 4 | 3 | - | 6030 | 35 | 13.7 | 20 | 85 | 1180 |
| Physicians and Surgeons | 5 | 4 | 2 | 8756 | 37 | 16.8 | 120 | 1135 | 2890 |
| Dentists | 6 | 5 | 3 | 9265 | 36 | 16.6 | 60 | 170 | 305 |
| Nurses | 7 | 6 | 4 | 4853 | 34 | 12.2 | 3540 | 38825 | 90850 |
| Optometrists | 8 | - | - | 6542 | 40 | 13.5 | 2 | 0 | 90 |
| Judges and Magistrates | 9 | 7 | 5 | 10191 | 52 | 13.0 | 70 | 0 | 75 |
| Lawyers and Notaries | 10 | 8 | 6 | 8179 | 37 | 15.6 | 120 | 345 | 785 |
| Biologists | 11 | - | - | 5513 | 32 | 15.3 | 180 | 280 | 715 |
| Economists | 12 | - | - | 6973 | 35 | 14.4 | 195 | 315 | 580 |
| Professors | 13 | 9 | 7 | 8356 | 36 | 16.6 | 10 | 1815 | 4715 |
| Teachers | 14 | 10 | 8 | 5611 | 34 | 13.7 | 1785 | 64745 | 180515 |
| Dieticians | 15 | - | - | 5641 | 35 | 16.6 | 120 | 610 | 1705 |
| Newsboys | 16 | - | - | 1089 | 27 | 9.6 | 0 | 230 | 540 |
| Service Station Attendants | 17 | 11 | - | 1182 | 30 | 10.6 | 10 | 500 | 1320 |
| Insurance Salesmen | 18 | - | - | 4482 | 35 | 11.5 | 155 | 2210 | 4160 |
| Salesmen | 19 | - | - | 3915 | 39 | 11.6 | 5 | 310 | 665 |
| Bartenders | 20 | - | - | 2389 | 33 | 8.8 | 10 | 415 | 1895 |
| Barbers and Hairdressers | 21 | 12 | 9 | 2481 | 31 | 9.6 | 25 | 13545 | 36625 |
| Policemen and Detectives | 22 | 13 | 10 | 4636 | 37 | 10.9 | 590 | 275 | 585 |
| Secretaries and Typists | 23 | 14 | 11 | 3718 | 31 | 11.2 | 46760 | 137480 | 324685 |
| Bus Drivers | 24 | 15 | 12 | 1970 | 39 | 8.8 | 50 | 2015 | 3045 |
| Taxi Drivers and Chauffeurs | 25 | 16 | 13 | 2675 | 39 | 8.7 | 20 | 350 | 895 |
| Telegraph Operators | 26 | 17 | 14 | 4311 | 32 | 10.0 | 10 | 65 | 190 |
| Mail Carriers | 27 | - | - | 2735 | 43 | 8.8 | 1330 | 555 | 1330 |
| Flour and Grain Milling | 28 | - | - | 1317 | 36 | 9.3 | 0 | 1 | 2 |
| Fish curing, canning and packing | 29 | - | - | 1260 | 35 | 6.8 | 5 | 280 | 6890 |
| Tool and Die Machinery | 30 | 19 | - | 4097 | 36 | 8.2 | 0 | 115 | 135 |
| Motor Vehicle Mechanics | 31 | - | - | 4019 | 37 | 7.8 | 15 | 415 | 910 |
| Radio and T.V. Repairmen | 32 | - | - | 3154 | 38 | 8.7 | 5 | 125 | 200 |
| Typesetters and Compositors | 33 | 20 | - | 3523 | 33 | 10.5 | 40 | 700 | 1630 |
| Brick and Stone Masons | 34 | - | - | 4178 | 33 | 10.0 | 20 | 0 | 160 |
| TOTAL CANADA | | | | 3213 | 36 | 10.2 | G = 71 | 0 = 71 | |
| (for the 1941 base of 15 occupations) | | | | | | | 0.136 | 0.447 | |

Notes: See Table C.1

BIBLIOGRAPHY

Arrow, K.J. and Capron, W. "Dynamic Shortages and Price Rises: the Engineer-Scientist Case". *Quarterly Journal of Economics*. Vol. 73, no. 2 (May 1959). p.292 - 308.

Bahral, U. "Wage Differentials and Specification Bias in Estimates and Relative Labor Prices". *Review of Economics and Statistics*. Vol. 44, no. 4 (Nov. 1962). p.473 - 481.

Becker, G.S. *Human Capital*, New York: Columbia University Press, 1964.

Bell, P.W. "Cyclical Variations and Trend in Occupational Wage Differentials in American Industry since 1914". *Review of Economics and Statistics*. Vol. 33, no. 4 (Nov. 1951). p.329 - 337.

Blackmore, D.J. "Occupational Wage Relationships in Metropolitan Areas, 1961 - 1962". *Monthly Labour Review*. Vol. 86 (Dec. 1963). p.1426 - 1431.

Blank, D.M. and Stigler G.J. *The Demand and Supply of Scientific Personnel*. New York: National Bureau of Economic Research, 1957.

Butler, A. and Kim, K. "The Dynamics of Wage Structures". *Southern Economic Journal*. Vol. 39, no. 4 (April 1973). p. 588 - 600.

Canada, Bureau of Statistics. *Occupational Classification Manual, Census of Canada, 1961*. Ottawa: Queen's Printer, 1961.

Canada, Bureau of Statistics. *Occupational Classification Manual, Census of Canada, 1971*. Ottawa: Information Canada, 1971.

Canada, Department of Labour (Economic Research Branch). *The Behaviour of Canadian Wages and Salaries in the Post-War Period*. Ottawa: Queen's Printer, 1967.

Canada, Department of Labour (Economics and Research Branch). *Canadian Labour Income, Recent Trends, the Current Picture*. Ottawa: Information Canada, 1974.

Canada, Department of Manpower and Immigration. *Canadian Classification and Dictionary of Occupations 1971*. Vol. 1 (classification and definitions). Ottawa: Information Canada, 1971.

Cartter, A.M. *Theory of Wages and Employment*. Homewood, Illinois: Irwin, 1959.

Douty, H.M. "Sources of Occupational Wage and Salary Rate Dispersion within Labour Markets". *Industrial and Labour Relations Review*. Vol. 15 (Oct. 1961). p.67 - 74.

Dunlop, J.T. "The Task of Contemporary Wage Theory" in Taylor, G.W. and Pierson, F.C. (eds.) *New Concepts in Wage Determination*. New York: McGraw - Hill, 1957. p. 117 - 139.

Dunlop, J.T. (ed.) *The Theory of Wage Determination*. London: Macmillan, 1957.

Dunlop, J.T. "Cyclical Variations in Wage Structure". *Review of Economics and Statistics*. Vol. 21 (Feb. 1939). p. 30 - 39

Dunlop, J.T. and Rothbaum, M. "International Comparisons of Wage Structures". *International Labour Review*. Vol. 71, no. 4 (April 1955). p.347 - 363.

Economic Council of Canada. *People and Jobs, A Study of the Canadian Labour Market*. Ottawa: Infocan, 1976.

Economic Council of Canada: *Third Annual Review: Prices, Productivity and Employment*. Ottawa: Queens Printer, 1966.

Evans, R. "Wage Differentials, Excess Demand for Labour and Inflation: A Note". *Review of Economics and Statistics*. Vol. 45, no. 1 (Feb. 1963). p. 95 - 98.

Fogarty, M.P. "Portrait of a Pay Structure" in Meij, J.L. (ed.) *Internal Wage Structure*. Amsterdam: North Holland, 1963, p. 1 - 114.

Goldner, W. *Labour Market Factors and Skill Differentials in Wage Rates*. Berkeley: Industrial Relations Research Association Proceedings, University of California, 1957. p. 207 - 216.

Gunter, H. "Changes in Occupational Wage Differentials". *International Labour Review*. Vol. 89, no. 2 (Feb. 1964). p. 136 - 155.

Gustman, A.L. and Segal M. "The Skilled - Unskilled Wage Differential in Construction". *Industrial and Labour Relations Review*. Vol. 27, no. 2 (Jan 1974). p. 261 - 275.

Hildebrand, G.H. and Delahanty, G.E. "Wage Levels and Differentials" in Gordon, R.A. and Gordon, M.S. (eds.) *Prosperity and Unemployment*. Conference on Unemployment and the American Economy. New York: Wiley, 1966. p. 265 - 301.

Hugh - Jones, E.M. (ed.) *Wage - Structure in Theory and Practice*. Amsterdam: North Holland, 1966.

Johnston, J. *Econometric Methods*. New York: McGraw - Hill, 1972.

Kanninen, T.P. "Occupational Wage Relationships in Manufacturing 1952 - 53". *Monthly Labour Review*. Vol. 76, no. 11 (Nov. 1953). p. 1171 - 1178.

Keat, P.G. "Long-Run Changes in Occupational Wage Structure, 1900 - 1956". *Journal of Political Economy*. Vol. 68, no. 6 (Dec. 1960). p. 584 - 600.

Kerr, C. "Wage Relationships - The Comparative Impact of Market and Power Forces" in Dunlop, J.T. *The Theory of Wage Determination*. London: Macmillan, 1957. p. 173 - 193.

Kmenta, J. *Elements of Econometrics*. New York: Macmillan, 1971.

Knowles, K.G.J.C. and Robertson, D.J. "Differences Between the Wages of Skilled and Unskilled Workers, 1880 - 1959". *Bulletin of the Oxford University Institute of Statistics*. Vol. 13, no. 4 (April 1951). p. 109 - 127.

Lebergott, S. "Wage Structures". *Review of Economics and Statistics*. Vol. 29, no. 4 (Nov. 1947). p. 274 - 285.

Leiserson, M.W. "Wage Decisions and Wage Structures in the United States" in Hugh - Jones, E.M. (ed.) *Wage Structure in Theory and Practice*. Amsterdam: North Holland, 1966. p. 1 - 69.

Livernash, E.R. "The Internal Wage Structure" in Taylor, G.W. and Pierson, F.C. (eds.) *New Concepts in Wage Determination*. New York: McGraw - Hill, 1957 p. 140 - 205.

Lydall, H. *The Structure of Earnings*. London: Oxford University Press, 1968.

Maher, J.E. "The Wage Pattern in the United States, 1946 - 1957". *Industrial and Labour Relations Review*. Vol. 15 (Oct. 1961). p.3 - 20.

Mansfield, E. "A Note on Skill Wage Differentials in Britain, 1948 - 54". *Review of Economics and Statistics*. Vol. 39, no. 3 (Aug. 1957). p. 348 - 351.

McCaffree, K.M. "The Earnings Differential Between White Collar and Manual Occupations". *Review of Economics and Statistics*. Vol. 35, no. 1 (Feb. 1953). p. 20 - 30.

Meltz, N.M. *Changes in Occupational Composition of the Canadian Labour Force 1931 - 1961*. Dept. of Labour, Ottawa: Queen's Printer. 1965.

Meltz, N.M. *Manpower in Canada 1931-1961: Historical Statistics of the Canadian Labour Force*. Department of Manpower and Immigration, Ottawa: Queen's Printer, 1969.

Muntz, E.E. "The Decline in Wage Differentials Based on Skill in the United States". *International Labour Review*. June, 1955. p. 575 - 592.

Ober, H. "Occupational Wage Differentials, 1907 - 1947". *Monthly Labour Review*. Vol. 67, no. 2 (Aug. 1948). p. 127 - 134.

Oi, W. "Labor as a Quasi-Fixed Factor". *Journal of Political Economy*. Vol. 70, no. 6 (Dec. 1962). p. 531 - 555.

Organization for Economic Co-Operation and Development. *Wages and Labour Mobility*. Paris: O.E.C.D., 1965.

Ostry, S. "A Note on Skill Differentials". *Southern Economic Journal*. Vol. 29 (Jan. 1963). p. 231 - 234.

Ostry, S. and Zaidi, M.A. *Labour Economics in Canada* (second edition). Toronto: Macmillan, 1972.

Oxnam, D.W. "The Relation of Unskilled to Skilled Wage Rates in Australia". *Economic Record*. Vol. 26 (June 1950). p. 112 - 118.

Ozanne, R. "A Century of Occupational Differentials in Manufacturing". *Review of Economics and Statistics*. Vol. 44, no. 3 (Aug. 1962). p. 292 - 299.

Peitchinis, S.G. "Occupational Wage Differentials in Canada, 1939 - 1965". *Australian Economic Papers*. Vol. 8, no. 12 (June 1969). p. 20 - 40.

Peitchinis, S.G. *Canadian Labour Economics*. Toronto: McGraw - Hill, 1970.

Perlman, R. "Forces Widening Occupational Wage Differentials". *Review of Economics and Statistics*. Vol. 40 (May 1958). p. 107 - 115.

Phelps Brown, E.H. "The Long-Term Movement of Real Wages" in Dunlop, J.T. (ed.) *The Theory of Wage Determination*. London: Macmillan, 1957, p. 48 - 65.

Phelps Brown, E.H. and Hopkins, S.V. "The Course of Wage Rates in Five Countries, 1860 - 1939". *Oxford Economic Papers*. N.S. Vol. 2, no. 2 (June 1950) p. 226 - 296.

Phelps Brown, E.H. and Hopkins, S.V. "Seven Centuries of Building Wages". *Economica*. N.S. Vol. 22 (Aug. 1955). p. 195 - 206.

Raimon, R.L. "The Indeterminateness of Wages of Semi - Skilled Workers". *Industrial and Labour Relations Review*. Vol. 6 (Jan. 1953) p. 180 - 194.

Reder, M.W. "The Theory of Occupational Wage Differentials". *American Economic Review*. Vol. 45 (Dec. 1955). p. 833 - 852.

Reder, M.W. "Wage Structure, Theory and Measurement" in Universities National Bureau Committee for Economic Research. *Aspects of Labor Economics*. Princeton: Princeton University Press, 1962. p.257 - 317.

Rees, A. *The Economics of Trade Unions*. Chicago: University of Chicago Press, 1962.

Rees, A. *Economics of Work and Pay*. New York: Harper and Row, 1973.

Reynolds, L.G. and Taft, C. *The Evolution of Wage Structure*. New Haven: Yale University Press, 1956.

Rosen, S. "Unionism and the Occupational Wage Structure in the United States". *International Economic Review*. Vol. 11, no. 2 (June 1970). P. 269 - 286.

Rothbaum, M. and Ross, H.G. "Two Views on Wage Differences: Intra-Occupational Wage Diversity". *Industrial and Labour Relations Review*. Vol. 7, no. 3 (April 1954). p. 367 - 384.

Rothschild, K.W. *The Theory of Wages*. New York: Macmillan, 1955.

Routh, G. *Occupation and Pay in Great Britain, 1900 - 1960*. National Institute of Economic and Social Research. London: Cambridge University Press, 1966.

Scoville, J.G. *The Job Content of the Canadian Economy, 1941, 1951 and 1961*. Special Labour Force Study no. 3. Bureau of Statistics, Ottawa: Queen's Printer, 1967.

Segal, M. "Occupational Wage Differentials in Major Cities During the 1950's" in Perlman, M. (ed.) *Human Resources in the Urban Economy*. Baltimore: Johns Hopkins University Press, 1963. p. 195 - 207.

Smith, A. *The Wealth of Nations*. Cannon, E. (ed.) New York: Modern Library, 1937.

Sorkin, A.L. "Occupational Earnings and Education".
Monthly Labour Review. Vol. 91 (April 1968). p.6 - 9.

Turner, H.A. "Trade Unions, Differentials and the Leveling of Wages". *Manchester School of Economics and Social Studies*. Vol.20, no. 3 (Spet. 1952). p. 221 - 282.

Turner, H.A. "Infaltion and Wage Differentials in Great Britain" in Dunlop, J.T. (ed.) *The Theory of Wage Determination*. London: Macmillan, 1957. p. 123 - 135.

3 1761 11550473 0

